

1 IN THE UNITED STATES DISTRICT COURT
 FOR THE EASTERN DISTRICT OF TEXAS
2 TYLER DIVISION

1 FOR THE DEFENDANT:

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1 P R O C E E D I N G S

2 COURT SECURITY OFFICER: All rise for the
3 jury.

4 (Jury in.)

5 THE COURT: Please be seated.

6 Good morning, Ladies and Gentleman of the
7 Jury.

8 JURORS: Good morning.

9 THE COURT: Good to see you this morning.
10 You look bright-eyed again. We'll see what you look
11 like at the end of the day today.

12 Very well. Mr. Stevenson, you may
13 proceed.

14 MR. STEVENSON: Thank you.

15 THE COURT: Oh, before you do, do either
16 side have any exhibits they wish to offer today?

17 MS. MOORE: Yes, Your Honor.

18 At this time, Plaintiffs offer their
19 exhibit list titled Plaintiff's Preadmitted Exhibit List
20 for June 5th, 2013.

21 THE COURT: All right. They will be
22 marked as Plaintiff's Exhibit List No. 3.

23 Do Defendants have any objections to the
24 exhibits listed thereon?

25 MR. DE VRIES: We do not, Your Honor.

1 THE COURT: All right. They are
2 admitted.

3 All right. Do Defendants have a similar
4 list?

5 MR. DE VRIES: We do, Your Honor. Thank
6 you.

7 At this time, Defendants offer
8 Defendants' List of Preadmitted Exhibits for June 5th,
9 2013.

10 THE COURT: All right. Is there any
11 objection to those?

12 MS. MOORE: No, Your Honor.

13 THE COURT: Those will be marked as
14 Defendant's Exhibit List No. 3, and they are admitted.

15 All right, Mr. Stevenson. You may
16 proceed.

17 MR. STEVENSON: Thank you, Your Honor.

18 SCOTT NETTLES, Ph.D., PLAINTIFFS' WITNESS,

19 PREVIOUSLY SWORN

20 DIRECT EXAMINATION (CONTINUED)

21 BY MR. STEVENSON:

22 Q. Dr. Nettles, are you ready?

23 A. Yes, sir, I am.

24 Q. All right. I'd like to get into the claims
25 today, but before we embark upon that, I thought it

1 might be a little bit helpful to maybe spend a few
2 minutes with a refresher of what we heard last night
3 before we left.

4 A. Sounds good to me.

5 Q. So this is our diagram of the network.

6 A. Yes, sir.

7 Q. And the base station is what? Remind us
8 again.

9 A. That's your router in your home in 802.11.

10 Q. And in 802.11, these terminals were what?

11 A. They would be laptops or desktops or tablets
12 or all sorts of devices that would connect wirelessly.

13 Q. And remind us about what these blue dashed
14 lines are that we saw yesterday, please.

15 A. The blue dashed lines are really rectangular
16 boxes that carry the data that the user's actually
17 interested in.

18 Q. Are these the things we will be talking about
19 that are packets?

20 A. Yes, sir, they're packets.

21 Q. And are they carried on the radio waves along
22 the wireless network?

23 A. Exactly.

24 Q. If people have their laptops on in this room
25 right now with 802.11, are there packets flying around

1 in the air?

2 A. Yes, sir, there are.

3 Q. And what do the packets carry?

4 A. Well, they carry -- the blue ones carry user
5 data, along with a bunch of fields with other
6 information.

7 Q. And these packets would be where, if you were
8 sending the picture to somebody, pieces of that picture
9 might be torn up and put inside to be sent across the
10 network?

11 A. Yes, sir, that's exactly correct.

12 Q. And are the inventions we're going to be
13 talking about today dealing with the way packets are
14 created and dealt with by the transmitters and
15 receivers?

16 A. Yes, sir, they are.

17 Q. And do all the members of the network have to
18 understand, have a common agreement, on what the form of
19 the packets are going to be?

20 A. Yes, sir. That's an aspect of the standard.

21 Q. Yesterday we looked into some packets, I think
22 we zoomed in on a packet, and we saw some compartments.

23 Remind us the word you used to describe what
24 those compartments are.

25 A. I used the word field, but I'll probably use

1 that word and the word compartment today.

2 Q. Okay. And are those compartments important in
3 a packet network such as this?

4 A. Oh, yes, sir. They're -- they're very
5 important. Exactly how big they are, exactly where they
6 are, exactly what their constants are, that's a lot of
7 what the standard is about.

8 Q. And, again, does every member of the network
9 need to agree on where the compartments are in the
10 packets and what they do?

11 A. Yes, sir. Otherwise, they won't be able to
12 communicate.

13 Q. And I think we'll be dealing with some
14 inventions that talk about those fields or compartments,
15 right?

16 A. Yes, sir, we will.

17 Q. Okay. Well, let's move on now to the '215
18 patent.

19 MR. STEVENSON: And I believe this is at
20 Tab 6 in the jury notebook as Plaintiffs' Exhibit 10.

21 Q. (By Mr. Stevenson) When was this patent filed
22 for?

23 A. This patent was filed on April 9th, 1999.

24 Q. How can you tell that?

25 A. Well, what we are seeing here is the front of

1 the packet -- of the patent. It's easy to get them
2 mixed up. The front of the patent. And we -- there's
3 some blowouts here that have some specific information.

4 So the first blowout says: Provisional
5 application filed on April 9, 1999.

6 Q. And dates are important when it comes to
7 patents, right?

8 A. Very important, yes, sir.

9 Q. The date the patent issued was?

10 A. August the 3rd, 2004.

11 Q. And can you explain to us, just in a nutshell,
12 how we ought to think about this patent, and then we're
13 going to obviously unpack that and talk about it in
14 detail, but give us a headline for the patent.

15 A. Well, if you'll remember, we talked a little
16 bit about block acknowledgements. That's the way that
17 the receiver is going to tell the transmitter what
18 information was successfully received and what
19 information was not successfully received.

20 And this patent concerns providing flexibility
21 in the standard to have different kinds of responses and
22 specifically with a type identifier field, which is
23 going to help provide that flexibility.

24 Q. Okay. What were the inventors working on when
25 they came up with this invention?

1 A. They were working on 3G cellular standards.

2 Q. That's the 3G cellular standards that would be
3 in one of these phones?

4 A. Yes, sir.

5 Q. Why would an invention for a 3G cellular
6 standard be also applicable to Wi-Fi or 802.11n?

7 A. Well, these are all wireless networks, and
8 especially when they're sending data, they work in very
9 similar ways, and in particular, both 3G networks and
10 802.11 have these protocols that involve these
11 acknowledgements. They're call ARQ protocols.

12 Q. Do both cellular and 802.11 networks use
13 data -- excuse me -- use ARQ protocols?

14 A. Yes, sir, they both do.

15 Q. What does that stand for, ARQ?

16 A. That stands for automatic repeat request.

17 Q. Okay. And could you tell us what that means
18 in lay terminology?

19 A. Well, it's really the protocol we've already
20 been talking about. It's a protocol whereby, in our
21 specific case, the transmitter is going to send a
22 request to the receiver to tell it what it received, and
23 the receiver's going to respond, and then the
24 transmitter is going to, again, in our case, optionally
25 retransmit.

1 And that whole process of sending and
2 acknowledgement and the retransmitting and then maybe
3 sending another acknowledgement, that's what an ARQ
4 protocol is.

5 Q. Okay. And so cellular phones, as well as home
6 Wi-Fi, do those things?

7 A. Yes, sir, they do.

8 Q. Do both use packets?

9 A. Yes, sir, they do.

10 Q. And do both have acknowledgements of packets?

11 A. Yes, sir. That's part of the ARQ protocol.

12 Q. Do both cellular networks and Wi-Fi have to
13 deal with dropped packets and that sort of thing?

14 A. Yes, sir. Again, they're both wireless, so...

15 Q. And my phone can be on the cellular system,
16 right, to make cellular calls, but, simultaneously, I
17 think I can connect to Wi-Fi.

18 A. Yes, sir, that's correct.

19 Q. Are those using, like, you know, kind of
20 different networks?

21 A. They're using different networks, yes, sir.

22 Q. At the same time?

23 A. At the same time.

24 Q. Okay. So you told us that this patent deals
25 with that response that we saw on the animation

1 yesterday, which is when the base station says, did you
2 get all my packets, and then the terminal says, yeah, I
3 got 1, 2, 4, 9, dropped 3 and 6?

4 A. Yes, sir, that's correct.

5 Q. Okay. And so are we -- is this patent dealing
6 with that response back to the base station?

7 A. Yes, sir, exactly.

8 Q. What triggers this response that we're talking
9 about?

10 A. In this case, there's a request. So the
11 response is called a block acknowledgement, and the
12 request is called a block acknowledgement request.

13 Q. Okay. And does this patent deal with the
14 format of the response of that acknowledgement?

15 A. Yes, sir, it does.

16 Q. And why is the response format important?

17 A. Well, we'd like to have a number of possible
18 different formats as part of the standard so that we can
19 have flexibility in the system.

20 Q. When can a transmitter send this
21 acknowledgement -- excuse me -- send a request?

22 A. Well, typically, it's sent after it's sent a
23 group of packets that it wants to know whether or not
24 they've been received or not.

25 Q. Now, explain to me, please -- you mentioned

1 this invention gives flexibility. How does it do that?

2 A. Well, it allows the protocol to define a
3 number of different possible responses and for the
4 receiver to indicate which of those possible responses
5 it's actually using in the block acknowledgement.

6 Q. Why not just have one?

7 A. Because really if we had one, we'd be saying
8 that one size fits all; and one size, in this case,
9 doesn't fit all.

10 Q. Is there in the patent an indication of
11 different types of message formats and how the packets
12 indicate which one is being used?

13 A. Oh, yes, sir, that's -- since that's the
14 primary point of the invention, that's very clearly
15 described in the patent.

16 Q. And what is that called in the patent?

17 A. That's called the type identifier.

18 Q. What does the type -- well, what is the type
19 identifier? Is that one of the compartments that's in
20 the packet going back?

21 A. Yes, sir, exactly.

22 Q. And we're talking here about the red packets
23 rather than the orange ones?

24 A. Yes, sir. The red packets, they're going from
25 the receiver to the transmitter.

1 Q. And do those have compartments in them as
2 well?

3 A. Yes, sir, all packets do.

4 Q. So is this type identifier field located in a
5 compartment in one of those red packets?

6 A. Exactly.

7 Q. Do you have a slide that shows visually for us
8 how the type identifier would work?

9 A. Yes, sir, I do. I think it's the next slide.

10 Q. Okay. Do you want to go to that?

11 A. Yes, sir.

12 Q. All right. Let's orient everyone to what
13 we're seeing.

14 A. So here we see the base station on the left
15 and the terminal on the right.

16 Q. What we're seeing on your slide is sort of a
17 zoom-in of the base station and one of the terminals?

18 A. And the base station in this case is going to
19 act as the transmitter, and the terminal is going to act
20 as the receiver.

21 Q. That's what the blue arrows indicate?

22 A. Yes, sir. And we'll see some packets getting
23 sent as the animation proceeds.

24 MR. STEVENSON: Stop that there.

25 Q. (By Mr. Stevenson) Are we basically now seeing

1 these blue packets sent across?

2 A. That's exactly correct.

3 Q. And what happens next?

4 A. Well, next the receiver is going to send back
5 a block acknowledgement. That's this orange packet that
6 we see.

7 Q. And is this one of those control packets or
8 those red packets?

9 A. Yes, sir, it is.

10 Q. And does this one correspond to that message
11 we talked about earlier?

12 A. Yes, sir. This is the block acknowledgement
13 message.

14 Q. Is this the one where the -- the terminal is
15 saying, here's the packets I got from you, and here's
16 the packets I didn't get?

17 A. Exactly.

18 Q. And -- and I'm going to forward -- I'm going
19 to jump into the future a little bit here with the
20 patents, but how is the transmitter going to use that
21 information later on down the line on which packets got
22 lost and which packets didn't get lost?

23 A. Well, obviously, if a packet was successfully
24 received, there's no reason to retransmit it, so it's
25 going to look at the ones that weren't successfully

1 received, and then later on, it's going to make a
2 decision about whether or not to retransmit those
3 packets or not.

4 Q. Okay. But that's in the future. Let's deal
5 with now what we're talking about in the present.

6 Can we zoom in to that message and see it in a
7 little more detail and look at the compartments?

8 A. Yes, sir, we can.

9 MR. STEVENSON: Would you zoom in to it?

10 Q. (By Mr. Stevenson) What's the dark orange and
11 the light orange?

12 A. The dark orange is this type identifier field.
13 It's the thing that's going to tell us what the rest of
14 the packet means.

15 And the light orange is called a bitmap. It's
16 a list of yeses and noes that explain which packets have
17 been received and which packets haven't been received.

18 Q. So, for instance, the 1s and 0s that we see
19 there --

20 MR. STEVENSON: And, Mr. Diaz, would you
21 go back to the slide, please. Thank you.

22 Q. (By Mr. Stevenson) The 1s and 0s we're seeing
23 there, 10, 11, 10, is that a code to indicate which
24 packets have gotten through and which ones haven't?

25 A. It's really a list of yeses and noes. So it

1 says the first packet was received; the second packet
2 wasn't, et cetera.

3 Q. 1 is a yes, and 0 is a no?

4 A. In this case, yes, sir.

5 Q. Okay. Now, there's a -- the -- the front
6 field that's darker orange is identified as type
7 identifier. What's that?

8 A. Well, that's the -- that's the field that lets
9 us know what the format of the second field is. So what
10 does it -- what does the second field mean? We have to
11 look at the type identifier.

12 Q. When you say it lets us know --

13 A. Sorry. It lets the transmitter know.

14 Q. Okay. So the terminal is sending this group
15 of 1s and 0s to the base station in the light yellow?

16 A. Right.

17 Q. And those are going to basically be the list
18 or correspond to the -- which packets have been received
19 and which haven't?

20 A. Exactly.

21 Q. And so what -- what is the type identifier
22 doing to help out in that process?

23 A. Well, it's telling us basically the format of
24 that list and what kind of exactly -- exact information
25 that list is carrying.

1 Q. Okay. And does this type identifier key into
2 another table --

3 A. Yes, sir.

4 Q. -- that we saw a second ago?

5 A. There's a table that says what the
6 different -- so we see 10 here, but, obviously, there
7 are four different values. And this is the table.

8 Q. Okay. Explain to us why 10 is four different
9 values.

10 A. Well, it's -- 10 is one value, but there's two
11 bits there, and so that field can have the value 00, 01,
12 10, or 11.

13 Q. Okay. You can't have any 2s or 3s or 4s in
14 there?

15 A. No, sir.

16 Q. Its all --

17 A. It's all 1s and 0s.

18 Q. Is that how networks like this talk, just all
19 1s and 0s?

20 A. Yes, sir. That's how digital computers work.

21 Q. Okay. Okay. So if you have two spots for
22 numbers, and they have to either be 1 or 0, that gives
23 you four variations, basically, right?

24 A. Exactly four, yes, sir.

25 Q. 00, 01, 10, and 11.

1 A. Exactly.

2 Q. So this type of identifier field now, we look
3 below it, and does that match up to a table that gives
4 you what the identifiers would -- would correspond to?

5 A. That's exactly what this table is.

6 Q. So explain to us how the base station in this
7 example would use that table to figure out the message
8 type for the rest of the packet.

9 A. For example, in this example, the type
10 identifier is 10, so the receiver, the base station in
11 this case, would take the 10 and would look in the table
12 and would see that it means that the rest of the
13 information is a bitmap. And that's what we call this
14 content field, is a bitmap, this list of 1s and 0s.

15 Q. So this is sort of matching up a number in a
16 table and then going over and seeing what it is?

17 A. That's correct.

18 Q. All right. And there are other choices there,
19 aren't there? No more list ACK?

20 A. Yes, sir.

21 Q. What do those mean?

22 A. Well, no more is a way of indicating that
23 there's going to be no more indications of what things
24 have been received or not received.

25 A list means that there's going to be a list,

1 so a list might actually say 1, 4, 7, instead of using a
2 bitmap.

3 And then an ACK would just be a plain ACK
4 that you would typically use if there was only one
5 packet that you were trying to acknowledge.

6 Q. Okay. Let's say the rules of the system were
7 such that we were just going to send a bitmap all the
8 time.

9 A. Yes, sir.

10 Q. Never had in the rules a list or an ACK or
11 anything else?

12 A. Right.

13 Q. Would you need a type identifier?

14 A. No, sir, you wouldn't.

15 Q. You could just send a bitmap over, and
16 everyone would know how to decode it?

17 A. That's right. And, in fact, you wouldn't want
18 to use a type identifier because it would take up space
19 in that case.

20 Q. What's wrong with taking up space?

21 A. Well, it's overhead. It's something that you
22 have to pay for sending.

23 Q. Okay. Now, I'd like to take this animation
24 you did and relate it back to the patent we're looking
25 at so we can tie it into what's in the patent.

1 A. Okay.

2 Q. Is this table that you've shown us, in the
3 patent somewhere?

4 A. Yes, sir, exactly this table.

5 Q. And is that in the '215 patent?

6 A. Yes, sir.

7 So here we see the table.

8 MR. STEVENSON: And I'll invite everyone
9 in their patents to turn to Column 9.

10 A. And in the background, we can see the actual
11 patent, and it's by columns. And this part of the
12 patent is called a written description, and it's where
13 the inventors describe how to make or use -- how to make
14 their invention.

15 Q. (By Mr. Stevenson) Wait a second and let
16 everybody get there.

17 All right. Where do -- and we see this table
18 that was in your animation at the top of Column 9?

19 A. Yes, sir. It's exactly the same table.

20 MR. STEVENSON: And, Mr. Diaz, could you
21 pull up this patent, PX 10, on our exhibit display?

22 Q. (By Mr. Stevenson) I notice something in the
23 next column, which is Column 10, I'd like to get you to
24 look at.

25 A. Okay.

1 Q. And that's at Column 10, Line 10. I think the
2 way the Court told us, you can look at the top line of
3 the column and then go down on the left to the small
4 numbers. Column 10, Line 10.

5 A. Yes, sir. That's how it works.

6 Q. What does -- what does this say? Could you
7 read it to us, please?

8 A. This says: Although embodiments of the method
9 and apparatus of the present invention have been
10 illustrated in the accompanying drawings and described
11 in the foregoing detailed description, it will be
12 understand -- understood that the invention is not
13 limited to the embodiments disclosed but is capable of
14 numerous rearrangements, modifications, and
15 substitutions without departing from the spirit of the
16 invention as set forth and defined by the following
17 claims.

18 Q. All right. What does that mean to you?

19 A. Well, it's explaining that, although they've
20 given a specific description of how to build the
21 invention, there could be lots of other different ways
22 to build the invention that would still meet the claims
23 and would be part of the claimed invention.

24 Q. All right. So the Court instructed us that
25 that you can consider the patent in a couple of

1 different sections.

2 A. Yes, sir.

3 Q. One part is the claims, which start right
4 there in Column 10, right under that paragraph you just
5 read.

6 A. Yes, sir.

7 Q. What do you understand the claims to be?

8 A. Well, the claims are what really define the
9 invention. In fact, actually, each individual claim is
10 its own invention.

11 Q. Okay. So the claims are a legal description
12 of the invention for purposes of figuring out if there's
13 infringement?

14 A. Exactly.

15 Q. And everything before the claims, the
16 tables -- and if you flip back, there's a lot of them --
17 and figures and a lot of diagrams. What are the --
18 what's the purpose of those in a patent?

19 A. Well, they're so that -- one of the
20 requirements of a patent is that you have to actually be
21 able to -- somebody has to be able to read the patent
22 and build the thing that's been invented or use the
23 method.

24 And so the purpose of the previous is really
25 to explain to someone who, in this case, is a computer

1 programmer, a networking person, how to build this
2 invention in a specific context.

3 Q. Okay. Did this invention get carried over
4 into 802.11n, years later?

5 A. Oh, yes, sir.

6 Q. Let's look at the claim now. And we'll be
7 looking at two claims from this patent, Claim 1 and
8 Claim 2.

9 How did you go about determining if the claim
10 was infringed?

11 A. I looked at each one of the limitations --
12 that's each one of the things that are set aside with a
13 box beside it -- and I looked in the products, and I
14 asked: Does the product do the thing that's in the
15 limitation? So can I find this action in the product?

16 Q. And so the question is, if all the boxes check
17 off, the claim is infringed?

18 A. That's exactly the question.

19 Q. Now, as part of doing the analysis, does it
20 matter if the patent owner attended the standard meeting
21 for the standard that was being accused?

22 A. No, sir. It only matters if the claim
23 limitations are met.

24 Q. Okay. Does it matter if the alleged infringer
25 attended the standard-setting meeting?

1 A. No, sir. It only matters if the limitations
2 are met.

3 Q. Does it matter if anybody wrote up a paper and
4 contributed it to the standard for voting to see if it
5 got in as to whether that claim is infringed?

6 A. No, sir. It really only matters if the
7 individual limitations are all met.

8 Q. Who have you found in your work infringes
9 Claim 1?

10 A. The router Defendants, the computer
11 Defendants, and Intel.

12 Q. Let's talk about this claim a little bit now
13 in more detail.

14 Is a method for minimizing feedback responses
15 in an ARQ protocol.

16 A. Yes, sir.

17 Q. And, again, ARQ protocol is something that's
18 not just in cellular; it's also in Wi-Fi?

19 A. Yes, sir.

20 Q. And this is a method claim. Explain what a
21 method claim is, please, as you understand it.

22 A. In -- for method claims to infringe, you have
23 to do the method. So a method claim is like a recipe.
24 It's a set of steps. And so to infringe, you have to do
25 each one of the individual steps.

1 Q. And we see these three steps here?

2 A. That's right.

3 Q. So we should go through each three of the
4 steps and see if those are met in the standard in the
5 product.

6 A. That's right.

7 Q. Who have you found -- well, let me ask this:
8 Does the programming that the Defendants put in their
9 products perform this method automatically without user
10 intervention?

11 A. Yes, sir, it does.

12 Q. And in addition to the Defendants, who else
13 performs the method that you found?

14 A. The users of the devices the Defendants sell.

15 Q. Who's responsible for that?

16 A. The Defendants.

17 Q. Why is that?

18 A. The Defendants induce the users to practice
19 this method by basically selling something that does the
20 method and encouraging them to use it.

21 Q. And have you seen evidence that the Defendants
22 intend that their devices be used for 802.11n?

23 A. Yes, sir. That -- that's -- that's the whole
24 reason for selling them.

25 Q. And when 802.11n devices connect, do they

1 connect at the highest speed they can, as in 802.11n?

2 A. Yes, sir, they do.

3 Q. Let's look at the first two steps here. Let's
4 take them together. The first is sending a plurality of
5 first data units over a communication link. And the
6 next is receiving said plurality of data units.

7 A. Yes, sir.

8 Q. What devices perform these steps on the
9 network?

10 A. The transmitter will send the plurality of
11 data units. That's really saying that the transmitter
12 sends packets, and the receiver will receive those
13 packets.

14 Q. And -- and, again, as a reminder, although in
15 one of these networks you have a router and either
16 laptops or other devices, all of them are capable of
17 transmitting and receiving, right?

18 A. Oh, yes, sir, and all of them actually do
19 transmit and receive in the normal process of using the
20 network.

21 Q. What are the data units that are referred to
22 here, the first data units?

23 A. Those are the packets we've been looking at.

24 Q. The blue packets?

25 A. Yes, sir.

1 Q. And are a plurality sent?

2 A. Yes, sir. It wouldn't be a very useful
3 network if you only sent one packet.

4 Q. And would they be received after being sent at
5 least --

6 A. Not always, but usually, yes, sir.

7 Q. Have you found these two elements met by the
8 Defendants with regard to their accused products?

9 A. I have.

10 Q. I'm going to check those off as we go.
11 Let's go to the next element. It says: Responsive to
12 the receiving step, constructing a message field for a
13 second data unit, said message field, including a type
14 identifier field and at least one of a sequence number,
15 field length, field, and content field.

16 A. Yes, sir.

17 Q. Let's parse this out.

18 This step has to be done responsive to the
19 receiving step?

20 A. That's right.

21 Q. And have you found that is true in the
22 Defendants' products?

23 A. Yes, sir, I have.

24 Q. Then it has to construct a message field for a
25 second data unit?

1 A. Yes, sir.

2 Q. Now, let's stop there.

3 What's the second data unit?

4 A. The second data unit in this particular case
5 is going to be the block acknowledgement that the
6 receiver is going to send.

7 Q. And what does a block acknowledgement do?

8 A. It acknowledges a group of packets and which
9 ones have been received and which ones haven't.

10 Q. Okay. And has the Court given us a
11 construction for this particular term?

12 A. Yes, sir, it has.

13 Q. And is that construction contained in the jury
14 notebook at Tab 1, as well as on the screen here?

15 A. Yes, sir.

16 Q. And I think we made -- it says definition
17 here. We may use construction and definition
18 interchangeably. Would you read the Court's
19 construction or definition to us?

20 A. Responsive to the receiving step, generating a
21 message field, including a field that identifies the
22 message type of the feedback response message from a
23 number of different message types.

24 Q. Okay. Did you apply that in your work here?

25 A. Yes, sir. I'm required to.

1 Q. Now, you called this a block acknowledgement,
2 the --

3 A. Yes, sir.

4 Q. -- second data unit. What does a block
5 acknowledgement do within the standard in the products?

6 A. Well, it's a way of acknowledging more than
7 one packet at a time.

8 Q. Okay. This is the message in the tutorial you
9 gave us about I received 1, 2, 5, and 9 and missed 3 and
10 6?

11 A. Exactly.

12 Q. Does the standard have rules about when
13 receivers send block acknowledgements?

14 A. Yes, sir, it does.

15 Q. And when is that?

16 A. Well, when -- when it's -- the receiver is
17 asked to send them, because it's gotten a block
18 acknowledgement request.

19 Q. Okay. Does the receiver have to follow the
20 rules?

21 A. Yes, sir, it does.

22 Q. How many different types of block
23 acknowledgement requests are there?

24 A. There are two types of block acknowledgement
25 requests.

1 Q. Okay. What are those called?

2 A. We call them explicit and implicit.

3 Q. Does the standard define the type of response
4 message that can be sent?

5 A. Yes, sir, it does. It defines a set of types.

6 Q. Okay.

7 MR. STEVENSON: Can we go to the next
8 slide, please?

9 Q. (By Mr. Stevenson) All right. Is this a
10 copy, or at least a slide that has the first page of the
11 standard?

12 A. Yes, sir. This is the amendment from 2009
13 that basically set up 802.11n.

14 Q. Is this Plaintiffs' Exhibit 286?

15 A. Yes, sir, it is.

16 Q. And can we go into this and see which -- where
17 those definitions are?

18 A. We can.

19 Q. Okay. We had something pop up, and we're
20 going to be seeing a lot of this in the slides. I want
21 to make sure that we're all understanding what we're
22 seeing.

23 And have you got a copy of your standard in
24 front of you?

25 A. I do.

1 Q. Okay. And it may help you to look at that,
2 whichever is better for you.

3 What are we seeing sort of pulled up on this
4 slide as a call-out in front of the cover page of the
5 standard?

6 A. Well, that's a figure that appears on Page 30
7 of the actual standard.

8 Q. Is this something you made up as an animation,
9 or is this actually a -- a picture of the document?

10 A. This is -- this is a Xerox copy of the -- of
11 the document.

12 Q. All right. And so this long rectangle with
13 compartments is what -- can you relate it back to us on
14 what we're -- what would be here?

15 A. It's the second data unit.

16 Q. The second data unit?

17 A. Yes, sir.

18 Q. And it would be one of these orange squares?

19 A. Yes, sir, one that's going from the receiver
20 to the transmitter.

21 Q. So what we've done is we've -- we've zoomed in
22 on the orange square now to look deep inside it, and
23 this is -- this isn't an animation. This is really
24 what's in the standard as to the compartments in that
25 orange square?

1 A. Yes, sir. And this is really what's going to
2 be transmitted over the radio waves eventually, as well.

3 Q. So we're going to look into the orange square.
4 What are we looking for to see if there's
5 infringement?

6 A. We're looking for this type identifier field.

7 Q. Okay. Will you show us -- can we zoom in on
8 this -- on the standard and see where you found the type
9 identifier field?

10 A. Yes, sir. If you'll -- if you'll notice, one
11 of the compartments right in the middle is called BA
12 control, and that's going to be where the type
13 identifier field is.

14 Q. Okay. Is that a single compartment, or is it
15 a -- compartments within a compartment?

16 A. So as we said, these are complicated systems,
17 so often the compartments have compartments nested
18 inside of them. So this is one of those kinds of
19 compartments. So we should look inside to see the
20 actual type identifier field.

21 Q. Okay. Sort of like those Russian
22 gift-within-a-gift-within-a-gift things?

23 A. Yes, sir.

24 Q. All right. So we're now into now -- so what
25 you've done is you've zoomed into what's inside that

1 control field?

2 A. That's right.

3 Q. Is that more compartments?

4 A. Yes, sir. These are the compartments that are
5 inside of that -- that control field. And this is
6 actually on Page 31 of the standard.

7 Q. And that's Figure 7-16?

8 A. Yes, sir, it is.

9 Q. Okay.

10 A. And what we see here is that there are two
11 fields that are highlighted, the multi-TID field and the
12 compressed bit map field. And those two fields taken
13 together are the TID that's described in the claim.

14 Q. There's numbers that say bits under the bottom
15 of that?

16 A. Yes, sir.

17 Q. What do those numbers refer to?

18 A. Well, that's telling us that the very first
19 bit of this field is the BlockAck policy and that the
20 next two bits are the multi-TID and compressed bitmap
21 and that -- and those are the ones we've identified as
22 the TID. And then there are 9 that are reserved.

23 That's so that later on, if we want to change
24 the standard, we can add stuff there.

25 Q. Okay. You said TID a couple of times --

1 A. Type identifier.

2 Q. Type identifier?

3 A. Yes, sir.

4 Q. All right.

5 A. Sorry.

6 Q. Is that the type identifier that is called out
7 in the claim?

8 A. Yes, sir, it is.

9 Q. The TID is the type identifier?

10 A. Yes, sir.

11 Q. And do you have to take these two
12 compartments -- the multi-TID and the compressed bitmap
13 together for your code?

14 A. You do.

15 Q. Okay. How many numbers go in that first
16 compartment, the multi-TID?

17 A. Only a 0 or a 1.

18 Q. What about the next one, the compressed
19 bitmap?

20 A. Only a 0 or a 1.

21 Q. So we have four variations of this, different
22 types?

23 A. Yes, sir, exactly.

24 Q. In addition to a type identifier field, there
25 has to be at least one of a sequence number, a blank

1 field, and a content field. Can you show us where those
2 are in the standard?

3 A. Yes, sir. If you look just to the right of
4 the BA control field, there's something called a BA
5 information field on the top figure.

6 Q. Now, that's -- that's in yellow now.

7 A. Yes, sir. And so that's -- that's where --
8 that's where the -- there's actually going to be a
9 sequence number and a content field in the BA
10 information field.

11 Q. Okay. Can you zoom into the BA information
12 field?

13 A. Yes, sir, we can.

14 Q. Okay. Let's see what's in there.

15 There's two compartments or sub compartments
16 within that?

17 A. Yes, sir. This is a figure from Page 33, and
18 the first sub compartment is starting sequence control.
19 That's a sequence number. And the second field is the
20 BlockAck bitmap. That's a kind of content field. In
21 fact, it's a content field that is a bitmap.

22 Q. All right. So does that satisfy this
23 requirement of the content field?

24 A. Yes, sir, it does.

25 Q. Now, let's -- let's put our English grammar

1 hats on for a minute.

2 It says -- the claim requires the message
3 field include the type identifier field -- we've seen
4 that?

5 A. Yes, sir.

6 Q. And at least one of them, a sequence number
7 field, a length field, and a content field?

8 A. That's right.

9 Q. So for this part of the claim, at least one
10 of, how many of these three selections need to be
11 present for it to be met?

12 A. Just one.

13 Q. Why is that?

14 A. Well, because that's what "at least one of"
15 means.

16 Q. So type identifier field, plus at least one of
17 any of the following three selections, and this is true?

18 A. Yes, sir.

19 Q. Which one of the three selections does the
20 standard use for the second part of that sentence?

21 A. The standard actually has two of them. It has
22 a sequence number and a content field.

23 Q. Now, are there rules in the standard about
24 what information has to go into each one of these slots?

25 A. Yes, sir. I mean, the rules are about what

1 are the possible things that can go there. But in
2 particular, there's very specific things in the standard
3 about what can be in that type identifier field.

4 Q. And is there some guidance given in there?

5 A. Oh, yes, sir. There's -- there's a table that
6 explains what the possible values are and what they
7 mean.

8 Q. Here's what I think might be helpful for all
9 of us at this stage is if we take this information we've
10 seen here now and put it back into the format of that
11 first animation you showed us, maybe it would be a
12 little more helpful to us?

13 A. Yes, sir. It won't be as abstract then.

14 Q. Right. Okay. So this is what we showed at
15 the beginning to sort of introduce the patented idea.
16 Now we have this for purposes of the claim comparison.

17 A. Exactly.

18 Q. Is this back to the base station and terminal
19 that we're seeing?

20 A. Right, and -- and the transmitter and
21 receiver.

22 Q. And now instead of trying to depict how the
23 patent works, are you trying to depict how the standard
24 works?

25 A. Yes, sir, I am, and -- and how the devices

1 work that follow the standard.

2 Q. So let's go ahead and roll forward with this.

3 All right. We've seen some blue packets?

4 A. Yes, sir.

5 Q. So those are the information packets that are
6 being sent?

7 A. That's right.

8 Q. And we have a yellow packet after it, which
9 is --

10 A. That's actually the BlockAck request. So
11 that's saying I'd like to get a BlockAck.

12 Q. Block acknowledgement is a BlockAck?

13 A. Sorry. Block acknowledgement.

14 Q. Okay. All right. Then does the terminal
15 respond?

16 A. Yes, sir, it does.

17 Q. And what is the BA?

18 A. That's a block acknowledgement.

19 Q. That's what we just looked at with all the
20 fields that nest within each other from the standard?

21 A. Exactly.

22 Q. Let's see how that works now. Can we zoom
23 into the block acknowledgement?

24 Is -- and this is compartments within it?

25 A. Yes, sir.

1 Q. And have you shown -- are you just showing now
2 the compartments that matter to the claims and taking
3 out the remainder from the standard to show what's
4 important?

5 A. That's exactly right.

6 Q. What's the first compartment you're showing?

7 A. That's that type identifier that we talked
8 about which is really two fields in that BA control
9 field.

10 Q. All right.

11 A. So two bits.

12 Q. And is there something that that would
13 correspond to that's in the standard?

14 A. Yes, sir. That particular value says that
15 it's a compressed BlockAck or a compressed block
16 acknowledgement.

17 Q. Okay. We just saw some things pop up on this,
18 and I want to make sure everyone knows what they are.

19 The type identifier that you pointed to, 01,
20 remember before when we were talking about the patent,
21 we went and looked that up in a table?

22 A. Exactly.

23 Q. Now we're talking about how the standard
24 works.

25 Does that type identifier you found in the

1 standard match up to a table in the standard?

2 A. It does.

3 Q. What's the number of that table?

4 A. That table is -- that table is Table 7-6K, and
5 that's Page 32 of the 209 stand -- 2009 standard.

6 Q. In your example, you have the type identifier
7 as 01. What would that match up to in the table?

8 A. That matches up to compressed BlockAck or
9 compressed block acknowledgement.

10 Q. Are there other message types other than
11 compressed BlockAck that are allowed by the standard?

12 A. Yes, sir, there are two other kinds, plus a
13 reserved.

14 Q. Okay. And, again, those are identified on
15 this chart, right?

16 A. Yes, sir, exactly. Those are the choices in
17 the system.

18 Q. And is this chart on the bottom of your
19 animation, is that, again, taken directly -- is that a
20 picture from the standard itself?

21 A. Yes, sir. It's on Page 32.

22 Q. So if the jury later wanted to get Exhibit 286
23 and go to this page, they could see this lower half of
24 the slide verbatim?

25 A. Oh, yes, sir. And on pages close to that,

1 they could see the other things we've been looking at.

2 Q. Tell me what the other message types are that
3 are defined by the standard.

4 A. There's a basic block acknowledgement --
5 that's another kind of bitmap -- compressed BlockAcks or
6 bitmaps. Reserved means sometime in the future we might
7 want to use that value; but right now we don't have a
8 use for it because standards need to evolve, and so you
9 often have reserved things.

10 And then the last one is called a Multi-TID
11 BlockAck.

12 Q. Okay. And what does that do?

13 A. It lets you acknowledge more than one TID.
14 That's another aspect of the system we'll talk about
15 later on. So what it really is, is a list of bitmaps.

16 Q. Now, the Court's definition states that
17 responsive to the receiving step, generating a message
18 field, including a field that identifies the message
19 type of the feedback response from a number of different
20 messages.

21 Are there a number of different messages here
22 in the standard?

23 A. Yes, sir, absolutely.

24 Q. Does the type identifier that you've
25 identified, the -- the two numbers identify the type of

1 feedback message response from one of the options in the
2 standard?

3 A. Yes, sir. That's exactly its purpose.

4 Q. Is this element met by the Defendants?

5 A. Oh, yes, sir, it is.

6 Q. We checked off all three elements of Claim 1.
7 And what does that allow you to conclude, Dr. Nettles?

8 A. That the claim is infringed and, therefore,
9 that the patent is infringed.

10 Q. Do the Defendants' products send a type
11 identifier in every block acknowledgement response?

12 A. Yes, sir, they do.

13 Q. And do the receivers construct them to respond
14 to which packets they've received -- previously
15 received?

16 A. Yes, sir, they do.

17 Q. Now, in addition to looking at the standard,
18 did you do anything to double-check your analysis?

19 A. Yes, sir, I did.

20 Q. What did you do?

21 A. Well, I looked at documents. I looked at
22 deposition testimony. I looked at the code. And I did
23 testing.

24 Q. Did you test some representative models of the
25 chipsets used by the Defendants to confirm they send a

1 type identifier?

2 A. Yes, sir, I did.

3 Q. And would this type identifier be necessary
4 for interoperability with other devices?

5 A. Yes, sir, it is.

6 Q. Let's go on to Claim 2 now.

7 Claim 2 is in a little bit different format.

8 Can you explain to us what kind of format it's in?

9 A. It's called a dependent claim, so that means
10 it depends on a different -- another claim.

11 Q. What -- what does it mean to depend on another
12 claim, Dr. Nettles?

13 A. It means that to show that that claim is
14 infringed, we first have to show that the claim that it
15 depends from is infringed. In this case, we have to
16 show that Claim 1 is infringed, and then we also have to
17 show that any additional limitations that have been
18 added are met.

19 Q. Is one way we can think of Claim 2 requires
20 for infringement the -- every element of Claim 1, plus
21 whatever is added by Claim 2?

22 A. Yes, sir, that's exactly what it means.

23 Q. So is it fair that Claim 2 would be narrower
24 in scope necessarily than Claim 1?

25 A. Yes, sir.

1 Q. Let's see what Claim 2 modifies. Again, we
2 have to link up, I think, the -- the English here.

3 It says: The message type -- excuse me, I'm
4 sorry, the message field comprises a bitmap message.

5 A. Yes, sir.

6 Q. So what -- what is this -- is this saying that
7 when we get to this message field over here, that
8 before -- in the -- in the main claim could be met by
9 one of -- at least one of a sequence number, length
10 filed, or content field, any one of these, is that
11 narrowing this down for a particular selection?

12 A. Yes, sir, it's -- it's basically saying that
13 the content field has to include a bitmap.

14 Q. And if the content field isn't a bitmap, is
15 Claim 2 infringed?

16 A. No, sir, it's not.

17 Q. So this is basically saying that to perform
18 this method, it has to be a bitmap every time, not
19 something else?

20 A. That's right.

21 Q. Do the Defendants' devices that comply with
22 the standard use a bitmap as the message type?

23 A. Yes, sir, they do.

24 Q. And we saw that compressed BlockAck in the
25 prior slide. Is that a bitmap?

1 A. Yes, sir, it includes a bitmap.

2 Q. Do the Defendants use a bitmap every time?

3 A. Yes, sir, they do.

4 Q. So they -- they select a bitmap consistently
5 in their products?

6 A. Yes, sir.

7 Q. Have you found this element to be met?

8 A. I have.

9 Q. Do the Defendants infringe Claims 1 and 2 of
10 the '215 patent?

11 A. They do.

12 Q. And are these claims, Dr. Nettles, essential
13 to compliance with the 802.11n standard?

14 A. They are.

15 Q. Anything else to add on this patent, or can we
16 move on to the next one?

17 A. We can move on.

18 Q. The next patent I would like to discuss would
19 be the '435 patent.

20 A. Yes, sir.

21 MR. STEVENSON: Mr. Diaz, would you go
22 back one slide?

23 Q. (By Mr. Stevenson) And just to remind everyone
24 where we are in the order or table of contents, we've
25 talked about the '215. We've got two coordination

1 patents coming up, '435 and '625, and then two other
2 patents. And I -- I may have called these the
3 synchronization patents in opening. I call them
4 coordination here, and that's just -- that's not a term
5 in the claims. That's just my shorthand for it.

6 A. Yes, sir.

7 Q. All right. Let's go to the '435.

8 What is the filing date of this patent?

9 A. This was filed on March 18th, 1999.

10 Q. And what date did it issue?

11 A. December 11th, 2001.

12 Q. And we have the Examiners there. Who were
13 those?

14 A. William Trost and Congvan Tran.

15 Q. So those are the people who work at the Patent
16 Office as Examiners who reviewed these patents?

17 A. Yes, sir, that's exactly what it is.

18 Q. I think we have different Examiners on each
19 one?

20 A. We do.

21 Q. What does this patent -- excuse me, what does
22 this patent deal with?

23 A. We talked earlier about the idea that
24 sometimes the transmitter needs to discard a packet.

25 And when the transmitter does that, it has to

1 inform the receiver of that so that they can stay in
2 sync. And this patent involves what the receiver does
3 to stay in sync with the transmitter.

4 Q. Okay. Let me go back to our example and
5 hopefully it will be helpful and we can see where in the
6 flow of packets this one fits in.

7 Now, we talked before about the message going
8 back from the terminal to the base station. The patent
9 just talked about saying here are the packets I didn't
10 get?

11 A. That's right.

12 Q. Now, where does this patent pick up in that
13 sequence of actions?

14 A. When the transmitter gets that block
15 acknowledgement that says that some of the packets were
16 missing, it has a choice. It can either retransmit
17 those packets or it can decide to drop those packets.

18 But if it decides to drop the packets, the
19 receiver is still waiting -- I mean, it told it -- the
20 receiver told the transmitter, I haven't gotten this
21 packet, so the receiver is waiting for that packet. So
22 the transmitter needs to tell the receiver that it's not
23 going to send that packet, and the receiver needs to
24 forget about that packet.

25 Q. Why would the transmitter ever want to not try

1 to retransmit a lost packet?

2 A. Well, we talked about this specific example of
3 a movie or a phone call.

4 Sometimes it's better to just drop information
5 and not re-transmit it and avoid creating a pause than
6 it is to try to re-transmit it over and over again and
7 make a disruptive pause.

8 Q. And in these ARQ type systems, who decides
9 when they're going to stop trying to retransmit lost
10 packets?

11 A. The transmitter is going to make that
12 decision.

13 Q. Now, does the transmitter need to stay
14 coordinated or in sync with the receiver when it's
15 making these decisions about not retransmitting lost
16 packets?

17 A. Yes, sir, it does.

18 Q. What does the Ericsson invention teach that
19 the receiver has to do?

20 A. Well, the receiver is going to have to -- so
21 the transmitter's going to have to send some information
22 to the receiver, and then the receiver's going to have
23 to compute which packets are no longer going to be
24 retransmitted. And then it has to release its
25 expectations of ever receiving those packets. Basically

1 it has to forget about those packets.

2 Q. Okay. And then does it have it to keep some
3 sort of record of this?

4 A. Well, yes, sir. So all the time it's keeping
5 a record of which packets it expects, and then it has to
6 update that record.

7 Q. Let's go through the claim on the foam board,
8 and I think talk about it. I think the first couple
9 will be quick, and then we have to dig into the details
10 of the next few.

11 Is this another method claim?

12 A. Yes, sir, it is.

13 Q. And who performs, if you found this method?

14 A. The Defendants perform this method.

15 Q. And how do they perform the method?

16 A. Well, they program their systems to
17 automatically perform this method without any user
18 intervention.

19 Q. And in addition, do the Defendants, for the
20 reasons you mentioned before, induce end users to do
21 this, as well?

22 A. Oh, yes, sir.

23 Q. This is a method that's complementary to the
24 selective repeat, automatic repeat request protocol.

25 And I know the preamble we don't have to check

1 off, but just so people don't get confused or lost in
2 this and wonder what's going on, can you explain what
3 that lead-in generally means?

4 A. Well, it's -- yeah, could -- could you turn
5 it? I --

6 Q. I'm sorry.

7 A. I don't have a -- I haven't memorized the
8 exact language.

9 So this is explaining that -- this is a method
10 that involves the discarding of these packets, as we've
11 been talking about, and the transmitter and receiver
12 have to coordinate. And --

13 Q. It says it's complementary. What does that
14 mean?

15 A. Well, that -- I think what it really means
16 is -- is this is -- this is an additional way an ARQ
17 protocol can work.

18 Q. Okay. And -- and Ericsson isn't claiming in
19 this case they invented the block acknowledgement?

20 A. Oh, no, sir.

21 Q. Or the ARQ protocol?

22 A. Oh, no, sir.

23 Q. Rather, these are specific enhancements and
24 improvements to those particular things that have been
25 around?

1 A. Oh, yes, sir.

2 Q. The first element is transmitting a data
3 packet discard notification message from the transmitter
4 to the receiver, indicating data packets the transmitter
5 has discarded.

6 And then the next step is receiving the data
7 packet discard notification message?

8 A. Yes, sir.

9 Q. Tell us how that -- those two steps are met by
10 the Defendants?

11 A. The transmitting step is met when the
12 transmitter sends a block acknowledgement request,
13 either an implicit one or an explicit one. And the
14 receiving step is met when the receiver receives that
15 block acknowledgement request.

16 Q. And, again, how many types of block
17 acknowledgement requests are there?

18 A. There are two.

19 Q. And what are the two types of block
20 acknowledgement requests?

21 A. Explicit and implicit.

22 Q. Now, did -- where did you get -- get the word
23 implicit from?

24 A. It's in the standard.

25 Q. And can we show the -- the slide in the

1 standard just so we could verify where you got that
2 terminology?

3 A. Yes, sir. I think there's a slide that shows
4 Page 136.

5 MR. STEVENSON: Can you go to the next
6 one, Mr. Diaz? Well, let's just -- we'll just move on
7 up. Maybe we could look at the standard. Can you pull
8 up 9.10.7.5 from the standard, which is PX 286?

9 A. And go to Page 136.

10 MR. STEVENSON: Okay. There we go. Can
11 you zoom in on that, Mr. Diaz?

12 Q. (By Mr. Stevenson) And I just want to show
13 where it is -- where it calls this an implicit BlockAck
14 request.

15 A. So if we look at the second line of the second
16 paragraph.

17 MR. STEVENSON: I think you were there,
18 Mr. Diaz. Second paragraph.

19 THE WITNESS: Blow up the second
20 paragraph.

21 A. Now, if we look at the second line, we see it
22 says: i.e., implicit BlockAck request or implicit block
23 acknowledgement request.

24 MR. STEVENSON: There we go. We found
25 it.

1 Q. (By Mr. Stevenson) All right. What's the
2 difference between an implicit and an explicit block
3 acknowledgement request?

4 A. Could I -- could I give an example?

5 Q. Sure.

6 A. Suppose you're going to invite somebody to a
7 party, so you send the party invitation; but you want to
8 know whether or not they're going to attend the party.
9 There's two ways that you could go about finding that
10 out.

11 A few days after you send a party invitation,
12 you could send them another piece of mail or you could
13 call them on the phone and you could say, are you coming
14 to the party? Let me know. That would be an explicit
15 request, so that would be an explicit acknowledgement
16 request for a party.

17 But the other way -- and probably the way you
18 would do it first -- is you'd write RSVP on the
19 invitation and then the person who got the invitation
20 would know that they should send back an answer to tell
21 you whether or not they're coming or not. So that would
22 be an implicit request because it's part of the actual
23 invitation, not a completely separate request.

24 Q. Does each of those two types of requests meet
25 the claim elements?

1 A. Yes, sir, they do.

2 Q. Does the system have to have both to infringe
3 or just one, in your view?

4 A. Just one.

5 THE COURT: All right. Mr. Stevenson, if
6 you're at a breaking place, I believe we'll take our
7 morning break at this time, and we will be on break
8 until 10:15.

9 Be in recess.

10 COURT SECURITY OFFICER: All rise.

11 (Jury out.)

12 (Recess.)

13 COURT SECURITY OFFICER: All rise for the
14 jury.

15 (Jury in.)

16 THE COURT: Please be seated.

17 All right. You may proceed,

18 Mr. Stevenson.

19 Q. (By Mr. Stevenson) All right. We were talking
20 about the implicit and explicit block acknowledgement
21 requests when we left; and just to pick back up, the
22 block acknowledgement request is the transmitter of
23 packets asking the receiver, what did you get and not
24 get. Right?

25 A. That's right.

1 Q. And we have two kinds of implicit and
2 explicit, the RSVP and the regular?

3 A. That's correct.

4 Q. So let me ask about each one separately. And,
5 again, does each one independently potentially infringe
6 the claims?

7 A. Yes, sir, that's correct.

8 Q. Okay. So let me ask about each one
9 separately, and we'll just go through them separately
10 and discuss them as we go along.

11 How does the explicit block acknowledgement
12 request indicate data packets the transmitter has
13 discarded?

14 A. It's going to contain a sequence number, so a
15 number that indicates someplace in the sequence of
16 packets that we've been sending, and it's going to
17 indicate that any packets below that sequence number are
18 no longer being processed by the transmitter.

19 Q. And now let me ask the same question as to the
20 implicit block acknowledgement request.

21 A. It's also going to contain sequence numbers,
22 packets; and based on the sequence numbers in the
23 packets in the implicit block acknowledgement request,
24 the receiver is going to be able to compute which
25 packets the transmitter is no longer going to transmit.

1 Q. And we're going to talk a little more in
2 detail in the next patent about these implicit and
3 explicit block acknowledgements, but could you just give
4 us an idea of when this implicit one is used?

5 A. Well, the implicit one is part of something
6 called an A-MPDU.

7 Q. Okay. And just say that out for us so we're
8 not all wondering.

9 A. Yes, sir. Well, that stands for aggregated
10 MPDU. MPDU is the, I guess, unfortunate name that the
11 standard gives to the packets that we've been talking
12 about. And the A part means aggregated. So what that
13 means is, really, we're going to send a bunch of packets
14 as a group rather than one at a time.

15 Q. Okay. We're going to have a bunch of acronyms
16 as we go along. Let me get you to say them out, and
17 then let's just give an explanation for it that we can
18 all understand, a shorthand for it.

19 We have an A-MPDU we're going to talk about,
20 right?

21 A. Yes, sir.

22 Q. And that's an aggregated MPDU.

23 A. Yes.

24 Q. The A is. Now, what's the MPDU part stand
25 for?

1 A. Well, that stands for MAC protocol data unit,
2 and that's the kind of packets that the MAC, which is
3 what we're talking about, sends and receives.

4 Q. MAC protocol data unit. Okay. And that's a
5 packet.

6 A. That's right.

7 Q. And what does MAC mean?

8 A. That means media access control.

9 Q. And that's another --

10 A. Yes, sir.

11 Q. What is a media access control?

12 A. The -- in these systems, you have to have some
13 system for figuring who gets to talk when, who controls
14 the floor, basically. And so that's media access, who
15 gets to access the media. That's the radio waves.

16 Q. Is this --

17 A. And that's what the MAC does.

18 Q. Is this media access control, is this inside
19 of each computer and router on the network?

20 A. Yes, sir. It's -- it's part of the 802.11
21 standard and its implementations.

22 Q. Is this how they decide who gets to talk when,
23 so they don't talk over each other?

24 A. That's exactly what's it for.

25 Q. Okay. So now, having done all that, so nobody

1 is wondering what do these mean, can we just say that as
2 a shorthand subject -- if we ever need to refine it more
3 later, let's refine it, but just as a shorthand, so it's
4 understandable, an implicit block acknowledgement gets
5 sent out with a group of packets?

6 A. Yes, sir. That is completely correct.

7 Q. And then let's go back to the claim elements.

8 The first step is: Transmitting a data packet
9 discard notification message from the transmitter to the
10 receiver indicating data packets the transmitter has
11 discarded.

12 A. That's right.

13 Q. Is that either the implicit or the explicit
14 block acknowledgement request?

15 A. Yes, sir, it is.

16 Q. And then would you expect those to be received
17 by the packet -- received by the receiver?

18 A. Yes, sir, barring some error.

19 Q. So let's talk about the next two elements, and
20 let's talk about those together.

21 The next element -- and this is, again, Claim
22 1 of the '435 patent -- is: The computing which data
23 packets have been discarded by the transmitter based on
24 the data packet discard notification message and then
25 removing entries from a first list indicating the data

1 packets expected to be received from the transmitter
2 wherein the entries correspond to data packets
3 identified in the computing step.

4 A. Yes, sir.

5 Q. Okay. I want -- that's a lot. I'd like to
6 back up and talk about those in a little bit more
7 explanatory detail.

8 Can you tell us generally what -- how this is
9 done in the standard?

10 A. The standard defines something called a
11 window, and the window involves which packets it's
12 expecting to receive. And one of the manifestations of
13 the window is in something called the scoreboard, and
14 the scoreboard has a way of keeping track of actually a
15 number of different windows all together.

16 Q. Okay. That's a lot of information. Let's see
17 if we can --

18 A. I'm sorry.

19 Q. Oh, I know, and it's my job to try to unpack
20 it.

21 Let's do this. Can we show in the standard
22 the evidence that you relied on? And then what I want
23 to do is, after showing all that, let's go back and look
24 at an animation that you've put together so we can
25 understand it a little more visually.

1 A. Yes, sir, we can do that.

2 Q. First, let's just get this out on the table,
3 as far as the information goes.

4 The defense counsel said in opening that
5 802.11 -- 802.11n doesn't have to compute discard
6 packets. I don't know if you remember that --

7 A. Yes, sir. I --

8 Q. -- in the transcript.

9 A. I saw that in the transcript, yes, sir.

10 Q. Is that correct?

11 A. No, sir, it's not.

12 Q. Is there a computation in the standard?

13 A. Yes, sir.

14 Q. Can we see that computation in the standard?

15 A. Yes, sir, we can.

16 MR. STEVENSON: Will you pull up the
17 standard, Mr. Diaz?

18 Q. (By Mr. Stevenson) Where should we go to?

19 A. We should go to 9.10.7.3, which is on
20 Page 30 -- Page 134.

21 Q. Okay.

22 A. And if we look at Section B. So Section B is
23 talking about when you get the implicit block
24 acknowledgement.

25 Q. Okay. Is that the computation you were

1 referring to that needs to be undertaken?

2 A. Yes, sir.

3 And then Section -- if we scroll down a little
4 bit, Section C --

5 THE WITNESS: Yes, sir, on the right-hand
6 page, Section C.

7 A. -- that's talking about the explicit block
8 acknowledgement request.

9 Q. (By Mr. Stevenson) Is this the computation
10 you're also referring to?

11 A. Yes, sir, it is.

12 Q. And these -- I think we're going to need your
13 help, obviously, in understanding it; but how do these
14 computations, which are in the standard, get imported
15 into the accused devices in these cases?

16 A. Well, the Defendants and their suppliers
17 implement these computations as part of their building
18 of the systems. So these scoreboards, for example, are
19 part of the implementations that we've looked at.

20 Q. So when you say part of the implementations,
21 is that essentially meaning the persons and engineers
22 who built the devices program into these devices this --

23 A. Yes, sir.

24 Q. -- these computational steps we're seeing
25 here?

1 A. Yes, sir. And the reason that these steps are
2 in such detail and sort of look like mathematics is,
3 this is what we might call pseudocode. So this is just
4 one step above the actual code. A programmer would read
5 this and then would write, you know, probably several
6 pages of code to do exactly the things that are
7 described here.

8 Q. You also mentioned a scoreboard. Is that in
9 the standard?

10 A. Yes, sir, it is.

11 Q. Where is that?

12 A. Well, actually, the section we're looking at,
13 9.10.7.3, it's all about the scoreboard.

14 MR. STEVENSON: Now let's zoom in on that
15 first paragraph.

16 Q. (By Mr. Stevenson) And it says: Scoreboard
17 context control during full-state operation.

18 A. Yes, sir.

19 Q. And please tell us, just at a real easy level,
20 what a scoreboard is?

21 A. A scoreboard is really just a way to -- in
22 this case, to keep track of a lot of complicated
23 information about different possible flows of packets
24 and which things have been received and which things
25 haven't been received, just like a scoreboard in your

1 normal life presents a bunch of data about what is going
2 on at a sporting event.

3 Q. Is the receiver keeping the scoreboard?

4 A. Yes, sir, it is.

5 Q. And, again, I'll keep mentioning this just to
6 make sure we remember, all the devices on the network
7 both transmit and receive.

8 A. Oh, yes, sir.

9 Q. So some day -- at one moment, the router may
10 be the transmitter, and then the next moment, it may be
11 the receiver as well.

12 A. Yes, sir. In fact, usually, they swap roles
13 back and forth.

14 Q. Okay. So do all devices keep this scoreboard?

15 A. They keep their own each individual
16 scoreboard, yes, sir.

17 Q. And do the scoreboards need to stay
18 synchronized or coordinated somehow?

19 A. Well, the scoreboard and the receiver needs to
20 be kept synchronized with what the transmitter is doing?

21 Q. Right. Better way to phrase my question, yes.

22 All right. So we've seen all this, and maybe
23 one way you could explain it to us so we can understand
24 it, without walking through the pseudocode, is to do
25 another animation. Have you prepared one?

1 A. Yes, sir. I think that would be helpful.

2 Q. So what are we seeing here? Tell us -- zoom
3 us in to what part of the network we're in right now and
4 what we're looking at, please.

5 A. Well, suppose that terminal 4 is the receiver.
6 We're looking at what's going in -- on inside of the
7 receiver. You might describe it as the brain of the
8 receiver.

9 Q. So is this a -- now, in the real world,
10 there's not a blue and white board that says scoreboard
11 with noes on it. This is all in computation logic,
12 right?

13 A. Yes, sir. It's either going to be computer
14 code and data that the computer code acts on; or in the
15 case of the scoreboard, it might actually be electronic
16 circuits that implement the scoreboard. Both of those
17 are possible.

18 Q. But the transistors and bits and all that
19 going on, is this at least a fair way to explain how the
20 algorithm in the standard works?

21 A. Yes, sir, it is.

22 Q. Okay. What is the line of boxes that goes
23 from left to right that's numbered 1 through 14?

24 A. Those are the places that we're going to store
25 the packets as they come in. Remember, packets have

1 sequence numbers, and so we're going to store a packet
2 with sequence number 1 in 1 and 2 in 2, et cetera.

3 Q. Can we show that?

4 A. Yes, sir, we can.

5 Q. And before we start, you put on there a dotted
6 green box. What does that represent?

7 A. Well, I mentioned earlier that there was an
8 idea of a window. So the window keeps track of, in the
9 receiver, what packets it's currently expecting to
10 receive. And so we see right now that the receiver's
11 expecting to receive packets 1 through 6.

12 Q. Okay. Now, beneath it is our scoreboard?

13 A. Yes, sir.

14 Q. And explain what is shown on the scoreboard.

15 A. Well, the scoreboard is keeping track of which
16 packets have actually been received and which packets
17 haven't; and right now, we haven't received any packets,
18 and so it says, no, for all of those packets.

19 Q. Now, can we put this into action and then see
20 how packets show up and what happens to them?

21 A. We can.

22 Q. All right.

23 MR. STEVENSON: Let's start that.

24 Can you rewind that? That may have gone
25 on a little bit fast. Carefully.

1 Q. (By Mr. Stevenson) We saw a blue box come in
2 from the left and drop into 1 and X. What does that
3 indicate?

4 A. Well, that indicates that that packet was
5 actually lost for some reason and didn't actually
6 arrive.

7 Q. So let's -- let's make sure we all understand
8 what we're seeing with reference to this.

9 One of these packets is coming into the
10 terminal; and before it got there, it got lost.

11 A. Yes, sir. Probably because it was interfered
12 with somehow.

13 Q. Microwave?

14 A. Microwave oven would be a good example.

15 Q. So what you've shown is X, an "X" there,
16 because there was a slot in the terminal waiting to get
17 the packet, never showed up?

18 A. That's right.

19 Q. Okay. Maybe better luck with the next one.
20 What happens, let's say, with the next one here?

21 A. So we see the 2 come in and it's actually
22 received, so it goes into the slot. And we also see
23 that the scoreboard now says, yes, to indicate it was
24 received.

25 Q. And is the terminal doing computations to

1 update this scoreboard for the yeses that we're seeing
2 here?

3 A. Oh, yes, sir.

4 Q. Okay. Let's show -- let's show what happens
5 next.

6 A. So 3 is received. Again, it's updated in the
7 scoreboard.

8 Q. Okay. What happens next?

9 A. 4 comes in. It's received. Again, it's
10 updated in the scoreboard.

11 Q. Next slide.

12 A. 5 -- 5 is lost, also.

13 Q. Another microwave zap?

14 A. And then 6. It's received. So the scoreboard
15 now indicates that the same information that we see in
16 the -- in the actual buffers there, that 1 and 5 were
17 not received.

18 Q. All right. So now our window is all taken
19 into account. We have 2 missing packets?

20 A. That's right.

21 Q. Out of 6 possible packets?

22 A. That's right.

23 Q. What happens next?

24 A. Well, next we see an explicit block
25 acknowledgement is going to come, and the first thing

1 that's going to happen --

2 Q. Okay. Let's back up a little bit.

3 MR. STEVENSON: Can we back up that --
4 that movement?

5 Q. (By Mr. Stevenson) So you said an explicit
6 block acknowledgement comes.

7 A. Yes, sir. I think actually in this animation
8 it's -- it's any kind of block acknowledgement.

9 Q. Okay. So it could be an explicit or an
10 implicit?

11 A. Yes, sir.

12 Q. Okay. And that would be sent by the base
13 station in this example, if that's who is transmitting?

14 A. That's right.

15 Q. And that would be sent down to the terminal.
16 Is that the -- the block acknowledgement request --
17 excuse me, I may be confused. Is this the block
18 acknowledgement request we're talking about?

19 A. Yes, sir.

20 Q. Okay. So that comes from the base station
21 down to the terminal, and it's indicating or it's asking
22 which packets didn't you get; is that right?

23 A. That's right.

24 Q. Okay. What does that do, that request to the
25 window?

1 A. Well, that request is going to -- to shift the
2 window. That's -- that's part of what it does.

3 Q. Why does the request shift the window?

4 A. Well, because either the request is additional
5 packets arriving in the case of the implicit one and so
6 it shifts the window, or an explicit BlockAck request,
7 that's -- that's part of its role is to -- is to shift
8 the window.

9 Q. Is that all defined and -- and required to be
10 computed according to the standard?

11 A. Yes, sir.

12 Q. Is that all in the map we saw in the standard
13 a minute ago?

14 A. Yes, sir, it is.

15 Q. Now, the window has moved over.

16 A. That's right.

17 Q. What happens next?

18 A. Well, the next thing that happens is the next
19 step of the claim, we have to update the scoreboard to
20 indicate that we are no longer waiting on 1 and 5.

21 Q. Well, before we leave this step of the claim,
22 is the step of computing which data packets have been
23 discarded by the transmitter, based on the data packet
24 discard notification message, is that met in what you've
25 seen in the standard and Defendants' products?

1 A. Yes, it is.

2 Q. And the computation, is that according to the
3 rules that are set forth mathematically in that section
4 of the standard you showed us?

5 A. Yes, sir, it is.

6 Q. And is that a computation?

7 A. Oh, yes, sir. I mean, computers have to
8 always compute things.

9 Q. Thank you.

10 Now, let's go to the next element.

11 A. Okay.

12 Q. Removing entries from a first list indicating
13 data packets expected to be received from the
14 transmitter wherein the entries correspond to data
15 packets identified in the computing step.

16 A. Yes, sir.

17 Q. How does that happen?

18 A. Well, we can -- if we re-run the animation, we
19 can -- we can see it happening.

20 Q. Okay.

21 MR. STEVENSON: Back that up. We may not
22 have all seen it, Mr. Diaz.

23 A. So --

24 Q. (By Mr. Stevenson) Tell us what we're looking
25 for, and then show us.

1 A. So right now we see the scoreboard. That's
2 the list that's keeping track of the packets that we
3 expect with the noes. The noes are the ones that we're
4 still expecting. And now we're going to -- based on how
5 we move the window, we're going to change the scoreboard
6 to be expecting the next setup of packets. And in the
7 process, we're no longer expecting any of the packets --
8 you know, we're not expecting 1 and 5, and so that's
9 what the next step is about.

10 Q. Okay. And in the animation we showed
11 something flying into a garbage. Obviously, there
12 aren't little garbage cans inside the computers. Is
13 this all implemented in the processing of the computers
14 that are within the accused devices?

15 A. Yes, sir. And actually the storage involved
16 will be recycled. So they're -- there's recycling, if
17 not garbage cans.

18 Q. And have you verified this operation by
19 looking at the source code for the domestic chip
20 manufacturers?

21 A. Yes, sir.

22 Q. Have you found this element to be met?

23 A. Yes, sir, I have.

24 Q. Let's go on to Dependent Claim No. 2.

25 A. Yes, sir.

1 Q. And, again, is looking at this dependent
2 claim -- we do it the same way we looked at the prior
3 one, which is to see if everything in 1 is met and then
4 add 2 to 1?

5 A. That's exactly how it works.

6 Q. 2 requires that we add in, that the data
7 packet discharge notification message contains a field
8 indicating the format of the message?

9 A. Yes, sir, that's correct.

10 Q. Does -- is there a data packet -- is there an
11 indication of the format of the message in the data
12 packet discard notification?

13 A. Yes, sir, there is.

14 Q. All right. Can you show that on your slides?

15 A. Yes, sir. It comes actually from the 2007
16 standard, I believe.

17 Q. All right. Is this PX 283?

18 A. Yes, sir, it is. You can't see the date, but
19 this is the -- this is the 2007 standard that the 2009
20 standard builds upon.

21 Q. Okay. And, again, is this a -- this isn't
22 something you created. Is this verbatim direct out of
23 the standard?

24 A. Exactly.

25 Q. If the jury wanted to see PX 283, go to

1 7.1.3.1. If you open that docket, you'll see exactly
2 this?

3 A. Exactly that, yes.

4 Q. Tell us how what has been highlighted here
5 corresponds to the final claim element.

6 A. Well, this says it's the frame control field.
7 Frames are another word that we use in this standard to
8 talk about packets. And the frame control field has a
9 type field and a subtype field, and that's going to
10 describe, as a code, what kind of packet it is; and what
11 kind of packet it is includes its format.

12 And so the type and the subtype field are
13 going to describe the format of the message. And both
14 the explicit and the implicit block acknowledgement
15 requests are going to have these type and subtype
16 fields. This is a very basic picture of what the
17 packets look like.

18 Q. Are those two fields, the type and subtype,
19 required for interoperability between the Defendants'
20 products?

21 A. Oh, yes, sir. I mean, these are -- the system
22 would fail terribly without those fields.

23 Q. Is this element met?

24 A. Yes, sir.

25 Q. Are these claims essential to compliance with

1 the 802.11n standard?

2 A. Yes, sir, they are.

3 Q. And do you find Claims 1 and 2 of the '435
4 patent infringed by Defendants?

5 A. Yes, sir, I do.

6 Q. Is there anything more to discuss on this that
7 we've left out, Dr. Nettles?

8 A. I don't -- no, sir, not that I can think of.

9 Q. Move on to the next one.

10 I believe the '625 patent that we'll be
11 talking about next is in Tab 3 --

12 A. Yes, sir.

13 Q. -- of the jury notebook.

14 Tell us the date of filing of the '625 patent,
15 please.

16 A. October 28th, 1998.

17 Q. And when did it issue?

18 A. July 23rd, 2002.

19 Q. And the Examiner was?

20 A. Kwang Yao.

21 Q. Can you tell us how this patent relates to the
22 prior patent we talked about?

23 A. Yes, sir. The prior patent talked about -- it
24 focused on what the receiver did when there was this
25 packet discarding and when there was this packet discard

1 message.

2 In this patent, we're talking about what the
3 transmitter does and how it commands the receiver to
4 take certain steps.

5 Q. Okay. Do the transmitter and receiver have to
6 follow the same set of rules in order to stay in
7 coordination?

8 A. Yes, sir. They're -- they're a matched pair.

9 Q. And is there any place in the patent that you
10 can point us to that describes visually how some of
11 these rules work?

12 A. Yes, sir, there is.

13 Q. Where -- where can we look?

14 A. If we look in the figure part of the patent
15 and we look at Figure 10B.

16 Q. Okay. So that's, I believe, sheet 9 of 12 at
17 Tab 3 of the jury notebook.

18 A. Yes, sir.

19 Q. A lot to take in, Dr. Nettles. Let's start
20 with what these boxes are.

21 A. Those boxes are another picture of the
22 packets. In this case, they're in the transmitter. And
23 this is where the transmitter is getting ready to send
24 this group of packets.

25 Q. The boxes that say PL+ Comp. Header and SN,

1 those would be these blue packets that are being
2 transmitted over the air?

3 A. Yes, sir, exactly.

4 Q. Okay. So we see engineers draw these a little
5 bit differently, just depending on how much detail we
6 need?

7 A. That's right.

8 Q. What are the empty dotted boxes on the left
9 and the right of those?

10 A. Well, at the left-hand side, the dotted boxes
11 are cells. That's another name for packets. I know we
12 have lots of names for packets. Those are cells that
13 have actually been discarded. And on the right-hand
14 side, the dotted boxes or cells, that haven't been given
15 to the transmitter to transmit yet.

16 Q. So how does this relate back to that window
17 you showed us with the green dotted box?

18 A. The -- the various horizontal lines with
19 double arrows, those are kinds of windows. And in
20 particular, I think the most important window here is
21 the top one that says =W.

22 Q. All right. So these windows -- you -- you
23 simplified them for us in the animation, but in the
24 patents, there's a more complicated depiction of
25 windows.

1 A. Yes, sir. There's typically a number of
2 different windows, and they indicate different --
3 different things.

4 So the labels here say something about what
5 the windows -- these particular spaces in this buffer
6 mean.

7 Q. Why do we need all this detail?

8 A. Well, remember the goal of the patent
9 specification is actually to teach someone who -- who
10 knows how to build these kinds of networking systems to
11 actually build the invention. And these are very
12 complicated systems, and they need to be very detailed.
13 Otherwise, the system might break. I think we've heard
14 deadlock referred to. Getting all the details right are
15 part of how you avoid deadlock.

16 Q. Let's turn now to the claim. This is Claim 1
17 of the '625.

18 A. Yes, sir.

19 Q. I believe that's on the next to the last page
20 of the patent.

21 A. Yes, sir.

22 Q. It's actually in Column 10.

23 Is this another method claim?

24 A. Yes, sir, it is.

25 Q. And what is the method that's being claimed?

1 A. It's a method for discarding packets in a data
2 network. And then it goes on to explain that it's a
3 packet transfer protocol. It includes an automatic
4 repeat request scheme. That's ARQ scheme, and then it
5 says what the steps are.

6 Q. Let's go through these steps. And maybe the
7 best thing we can do is read these all the way through
8 just so we know what we're going to be looking for, and
9 then I may ask you a bunch of questions about how to
10 understand them.

11 A. Okay.

12 Q. The first one is a transmitter in the data
13 network commanding receiver in the data network to (a)
14 receive at least one packet having a sequence number
15 that is not consecutive with the sequence number of a
16 previously received packet. And (b) release any
17 expectation of receiving outstanding packets having
18 sequence numbers prior to the at least one packet.

19 A. Yes, sir.

20 Q. Then the next one is the transmitter
21 discarding all packets for which acknowledgement has not
22 been received, and which have sequence numbers prior to
23 the at least one packet.

24 A. Yes, sir.

25 Q. Which of the Defendants' devices practice this

1 method?

2 A. All of them.

3 Q. And, again, are the Defendants responsible for
4 performance of the method?

5 A. Yes, sir, they program their devices to do
6 these steps without human intervention.

7 Q. And do end users of the devices also perform
8 these steps of the method?

9 A. Yes, sir. And they're induced by the
10 Defendants, as we discussed before.

11 Q. So let's talk about now the elements.
12 What have you found to be the first command we
13 talk about here?

14 A. The first command is when you send a packet
15 which is not consecutive with a subsequent packet.

16 Q. Is that, again, the transmitter sending the
17 packet?

18 A. Yes, sir, the transmitter is sending the
19 packet.

20 Q. Do all accused devices have transmitters and
21 capable of transmitting?

22 A. Yes, sir, they are.

23 Q. So we have a command -- or two things,
24 receiving at least one packet out of sequence, and then
25 (b) releasing expectation?

1 A. Yes, sir.

2 Q. Okay. Let's talk about those separately.

3 A. Okay.

4 Q. What have you found satisfies the receive at
5 least one packet having a sequence number that is not
6 consecutive with the sequence number of a previously
7 received packet limitation?

8 A. That's met when you send an MPDU or an A-MPDU
9 which is not consecutive with a previously delivered
10 packet.

11 Q. Okay. And what makes that a command?

12 A. Well, the system doesn't have any choice about
13 whether or not to accept that packet or not. It's --
14 it's required to do that, and that's what makes it a
15 command.

16 Q. Okay. Can you tell us where that is in the
17 standard?

18 A. Yes, sir. If we look at the 2009 standard --
19 I'm sorry, I don't know the Exhibit Number for that.

20 Q. I believe it's 286 -- PX 286.

21 A. If we look at Page 137, and if we look at
22 Section 9.10.7.6.1 at the top, it actually has a
23 discussion of 9.10.7.6.2 and 9.10.7.6.3, and 9.10.7.6.2,
24 which is just below, is where we would find the commands
25 to receive. And then part of the command -- part of the

1 next -- the next element -- the next subpart in B is
2 going to be in 10.6.2 and part of it's going to be in
3 7.6.3, which is, again, below.

4 Q. Okay. That was a lot. Maybe what might be
5 helpful -- and it's obviously -- we've got to get
6 through this and explain it.

7 Maybe we could look at this and get a
8 character or flavor for what kind of information we're
9 seeing and then let the jury see how it's written and
10 then we may have to, I think, go into an animation to
11 explain this in a little more understandable format.

12 MR. STEVENSON: Mr. Diaz, can you go to
13 one-page mode, please, and just take a look at that?

14 Can you go back -- I think we were --
15 maybe go to a single page so we can see a little bit.

16 A. And do you want to look at 6.2?

17 Q. (By Mr. Stevenson) Yes, let's scroll down and
18 see what we're looking at. I mean, these are
19 essentially detailed rules for conduct of the system,
20 right?

21 A. Exactly.

22 Q. Okay.

23 MR. STEVENSON: Can we go to 6.2 and zoom
24 in on that? And then let's go to the next page and take
25 a look at that, please.

1 A. We want to keep this one, also.

2 Q. (By Mr. Stevenson) Okay.

3 A. If we -- if we can do that.

4 Q. I think we can. Which is -- which is the
5 command here to receive an out-of-sequence packet?

6 A. Well, it's -- it's a combination of two spots.
7 The top spot, which is in 6.2 (a) is saying what happens
8 when you get a packet where the sequence number is
9 inside of the window. And No. 1 says: Store the
10 received MPDU in the buffer. And the (b) step that's
11 just below it on the screen is what happens when the
12 sequence number is outside of the window, above the
13 window, and it also says: Store the received MPDU in
14 the buffer.

15 And so together, those say whether or not it's
16 in the window or out of the window. You have to store
17 the MPDU, and that's the receive.

18 Q. And where's the command to release
19 expectation?

20 A. If we look at the (b) part that's at the
21 bottom for the implicit block acknowledgement request,
22 it's Steps 2 and 3. That's basically changing the way
23 the window works.

24 And now, if we look a little further down on
25 that page, we'll see where the explicit block

1 acknowledgement request is.

2 So blow up the section which is 7.6.3.

3 Q. Okay.

4 A. And that's the explicit block acknowledgement
5 request. And there it's in Section (a), 1 and 2. Those
6 define how the -- the command about expectations.

7 Q. Okay. Are these commands?

8 A. Yes, sir. Again, you don't get to ignore
9 them.

10 Q. And how are the commands communicated into the
11 accused devices?

12 A. Well, the programmers build the devices to
13 work this way.

14 Q. So if you're building a device that you want
15 to be interoperable and work according to the standard,
16 you have to basically program these commands into your
17 device?

18 A. Yes, sir.

19 Q. Okay. Now, we've seen a lot of rules and
20 window moves. I'd like to step back from the standard
21 for a minute, and I know you prepared an animation where
22 we can see visually how this works and maybe that will
23 help us understand better.

24 A. Yes, sir, I think it will.

25 Q. All right. What are we seeing here?

1 A. Well, here, again, we're seeing part of the
2 internals of the receiver with this buffer -- with these
3 slots. That's just like in the previous animation, but
4 now we're actually seeing the base station which is
5 going to act as a transmitter.

6 Q. Okay. And it's transmitting packets?

7 A. Oh, yes, sir. That's how we can transmit in
8 these systems.

9 Q. Okay. And is this what we're going to see,
10 like, before the packets come and get slotted in?

11 A. That's right.

12 Q. Is there a window?

13 A. Yes, sir, there is. And we see it. It's the
14 same window actually as we saw before.

15 Q. Okay. And this is, again, looking at the
16 receivers?

17 A. That's right. This is inside the receiver's
18 brain, if you -- if you will.

19 Q. All right. Can we start showing packets going
20 in again to the window?

21 A. We can. Now we see they really come from the
22 transmitter. Again, the first one's lost. The second
23 one is received. And because the first one was lost,
24 this one isn't consecutive with -- we don't see 0 in the
25 picture, but 0 is the previous one. So this is actually

1 the command to receive something that's out of sequence.

2 Q. The number 2 is the command?

3 A. Right. The -- the -- the -- receiving that
4 packet is a command to receive out of order.

5 Q. And explain one more time, why is receiving
6 the packet a command to receive out of order?

7 A. Because since this particular packet is out of
8 order and you're not allowed to not receive it, you're
9 required to receive it, it's a command.

10 Q. Okay. Let's keep going.

11 A. 3 is received. 4 is received. These are in
12 order, so they're not the command that the -- that the
13 method requires.

14 Now, 5 is lost again, just like before. And 6
15 is received. And, again, it's a command to receive out
16 of ordinary because 6 is not consecutive with 4.

17 Q. So this that you've described with the packets
18 showing up, is this true for both the MPDU and the
19 A-MPDU?

20 A. Yes, sir. The A-MPDU is really just a group
21 of PDUs that are sent altogether at once.

22 Q. Now, let's move on. And before we do, have
23 you satisfied yourself that the first part of the
24 command, the (a) part, receive at least one packet
25 having a sequence number that is not consecutive with

1 the sequence number of the previously received packet
2 has been met?

3 A. Yes, sir.

4 Q. Okay. We're not done with this element yet
5 because we now need to go to (b)?

6 A. Yes, sir.

7 Q. And that's release any expectation of
8 receiving outstanding packets having sequence numbers
9 prior to the at least one packet.

10 A. Yes, sir.

11 Q. Can you give us a more understandable
12 explanation? I mean, we're not going to change the
13 language. We're going to stick to that. But just help
14 us understand what this is getting to.

15 A. Well, (a) defines what the at least one packet
16 is.

17 So, for example, 6 is an example of those --
18 that at least one packet because it's out of sequence.

19 And now we have to do something to release
20 expectation of receiving, in this particular example, 1
21 and 5. And in this system the way it works is the
22 window defines what you're expecting to receive.

23 Q. And so -- let me ask you to explain that.

24 How --

25 A. Okay.

1 Q. -- does the window define what the receiver is
2 expecting to receive?

3 A. Well, that's sort of the definition of the
4 window is it's the -- the beginning of the window is the
5 beginning of the things that you're expecting --
6 currently expecting. And the end is the end of the
7 things that you're currently expecting. And things that
8 are before, you're not -- you're not expecting. You're
9 never going to ask for things that are earlier than the
10 beginning of the window --

11 Q. So if the --

12 A. -- to be transmitted.

13 Q. Sorry.

14 If the window moves across, does that release
15 expectation of receiving things before the window?

16 A. Yes, sir. That's kind of the whole reason for
17 doing this windowing stuff.

18 Q. And -- and can you show that on your
19 animation, please?

20 A. I can. I think the first one is going to show
21 what happens when we get an explicit block
22 acknowledgement request.

23 Q. So I'm going to stop here now just to slow us
24 down. We talked about two kinds of block
25 acknowledgement requests?

1 A. Yes, sir.

2 Q. Explicit and implicit?

3 A. Yes, sir.

4 Q. And, again, do both independently infringe the
5 patent?

6 A. Yes, sir, they do.

7 Q. Either one could do it. You don't have to
8 have both?

9 A. That's right.

10 Q. The first one comes across, is this the
11 explicit or implicit version?

12 A. This is the explicit because you see it's --
13 it's labeled BAR. That's for block acknowledgement
14 request.

15 Q. Why does it have 7 in parenthesis?

16 A. Because that says we're going to move the
17 front of the window to Slot 7.

18 Q. Under the standard, when block acknowledgement
19 requests are sent, do they have to have a number with
20 them?

21 A. The explicit ones do, yes.

22 Q. And why do they need a number with them?

23 A. Because the number defines what data you
24 actually care about, where you're going to move the
25 window, what you're going to get an acknowledgement for.

1 Q. Okay. After the explicit block
2 acknowledgement is received -- excuse me, after the
3 explicit block acknowledgement request is received by
4 the receiver, what does it do with its window and how
5 does it release expectations?

6 A. It's going to move it to 7.

7 Q. The window his has now moved over --

8 A. That's right.

9 Q. -- and shifted. And then what happens to the
10 expectations for the prior packets?

11 A. Well, anything that's below the left edge of
12 the window is no longer being expected. You don't
13 expect to receive anything below your window. And so
14 all of those -- the 1 and the 5, in particular, you're
15 no longer expect to receive those. You'll no longer --
16 you'll never ask the transmitter to send those to you.

17 Q. Okay. And the "you" in that being the
18 receiver?

19 A. Sorry. Yes, sir.

20 Q. All right. And -- so now, can you show the
21 same example for the other flavor of block
22 acknowledgement request, the implicit block
23 acknowledgement request?

24 A. I can. I think we show some packets coming in
25 first, and then we'll -- and then we'll see the other

1 example.

2 Q. Okay. So this just -- after you move the
3 window, it just keeps going on, filling up?

4 A. That's right.

5 Q. Is that how these things work? Do they -- do
6 these windows just keeping moving along and packets keep
7 coming in and just continually moving as more packets
8 come in?

9 A. Yes --

10 Q. And --

11 A. -- repeat.

12 Q. Now, can we go to the implicit block
13 acknowledgement request?

14 A. We can. So we're back in the same situation
15 as we were in before. We've gotten the out-of-order --
16 the out-of-sequence packets, and we've got some drops.
17 And now we're going to have an implicit block
18 acknowledgement request.

19 Q. Okay. And this is the group of packets we
20 talked about as being the other way of doing this?

21 A. That's right. This is this A-MPDU thing that
22 we talked about.

23 Q. Again, is this a sender of the -- the
24 transmitter of the packets deciding I don't want to try
25 to keep redoing 1 and 5, I'm going to move on?

1 A. That's right.

2 Q. This is -- don't want a pause in the video
3 time?

4 A. That's correct.

5 Q. So we're going to -- these -- so basically
6 when we talked about that little block or that little
7 glitch you'd see on your TV, is that because 1 and 5 are
8 missing?

9 A. Exactly.

10 Q. Okay. So -- so basically the transmitter has
11 decided I'm moving on, let's go ahead and release
12 expectation. We saw that with the -- the yellow bar
13 before.

14 A. That's correct.

15 Q. Now, this is a different -- an alternative way
16 of doing it in the standard?

17 A. That's right.

18 Q. Okay. Let's -- let's go ahead and see that.
19 These all got sent as a group?

20 A. That's because they're A-MPDUs, and that's an
21 aggregate group of packets.

22 Q. What does the IB mean?

23 A. That means that particular group is also an
24 explicit block acknowledgement. That's the RSVP.

25 Q. Okay. And is there -- how does receipt of the

1 A-MPDU cause the window to shift?

2 A. Well, the window is going to shift, in this
3 case, to the end of the A-MPDU. That's just the rules.
4 We saw earlier actually how this works in the -- in the
5 standard. So this is going to shift to the end.

6 Q. Okay. Does receipt of the A-MPDU and this
7 window shift command the receiver to release expectation
8 of receiving packets outside the window?

9 A. Yes, sir, it does.

10 Q. Have you found that (b) is met by both the
11 implicit and explicit block acknowledgement requests
12 because they release any expectation of receiving
13 outstanding packets having sequence numbers prior to the
14 at least one packet?

15 A. Yes, sir, it is.

16 Q. So have you found the commands in this -- in
17 the -- excuse me, in the standard and in the Defendants'
18 products to do both (a) and (b)?

19 A. Yes, sir, I have.

20 Q. Let's go to the next element.

21 The transmitter discarding all packets for
22 which acknowledgement has not been received, and which
23 have sequence numbers prior to the at least one packet.

24 A. Yes, sir.

25 Q. What does that refer to?

1 A. Well, now we're talking about -- again, this
2 is a transmitter-sort-of-focused claim, and now what
3 we're saying is that once the transmitter tells the
4 receiver that it's no longer interested in
5 retransmitting certain packets, it can just throw away
6 the packets that are below the point that it said now
7 I'm -- it's saying I'm -- now I'm interested in this
8 spot, but nothing before it, and so the transmitter can
9 discard everything that's before it.

10 Q. So once the window moves on and the packet
11 isn't going to be transmitted ever again, what happens
12 to it?

13 A. Well, the transmitter's going to discard it
14 because it's going to re-use that space for other
15 packets.

16 Q. Any point in keeping it?

17 A. No, sir, not at all.

18 Q. And is this element met by the accused
19 devices?

20 A. Yes, sir, it is.

21 Q. I wanted to ask you some questions about the
22 Defendants' products and their practices.

23 Do the Defendants use both in their products,
24 implicit block acknowledgement requests and explicit
25 block acknowledgement requests?

1 A. Yes, sir, they do.

2 Q. When are implicit block acknowledgement
3 requests used?

4 A. When you send one of these A-MPDUs, one of
5 these groups of packets together, my understanding is
6 that those are almost always sent as implicit BlockAck
7 requests.

8 Q. Okay. And do all the Defendants' products
9 send A-MPDUs?

10 A. Oh, yes, sir. That's one of the important
11 innovations of 802.11n is sending these packets in
12 groups. It's more efficient.

13 Q. When are explicit block acknowledgement
14 requests used in the Defendants' products?

15 A. Well, one of main times is when you send an
16 implicit block acknowledgement request and then that
17 causes a block acknowledgement to be sent, well, block
18 acknowledgements can get lost, also. And so if the
19 block acknowledgement gets lost, then you have to ask
20 again and the systems ask again by sending an explicit
21 block acknowledgement request.

22 Q. Have you checked the source code for the
23 domestic chip manufacturers to verify the accused
24 devices follow the standard as advertised?

25 A. Yes, sir.

1 Q. And have you seen implicit block
2 acknowledgements sent during your testing of
3 representative chipsets used in the Defendants'
4 products.

5 A. Yes, sir.

6 Q. And same question for explicit block
7 acknowledgement requests.

8 A. Yes, sir.

9 Q. Which one is more frequent, implicit or
10 explicit?

11 A. Oh, the implicit, sir, are much more frequent.

12 Q. And -- and what's the order of magnitude or
13 the ratio, approximately?

14 A. Well, it -- it really depends on the
15 conditions, but a hundred times more frequent, a
16 thousand times more frequent, 10,000 more -- times more
17 frequent.

18 Q. Okay. And what about the conditions
19 influences how many explicit block acknowledgement
20 requests will be sent?

21 A. Well, if you have conditions where it's likely
22 for the block acknowledgements to get lost, it makes it
23 more likely that you're going to send an explicit block
24 acknowledgement request to fix the fact that a block
25 acknowledgement got lost.

1 Q. Can you give me a real-world example? When
2 does that kind of thing happen?

3 A. Probably the easiest to understand case is if
4 you're communicating at the edge of your transmission
5 range. So it's very easy to lose packets at the edge of
6 the transmission range. That's one of the places it's
7 most likely to see explicit block acknowledgement
8 requests.

9 Q. So if I have -- let's say I have a router.

10 A. Okay.

11 Q. And I had an Internet a connection, I'd plug
12 it in right here at the podium.

13 A. Okay.

14 Q. Put it right here.

15 A. Okay.

16 Q. I guess this is where the radio is, right?

17 A. It's where one of them is, yes, sir.

18 Q. And then whatever I'm talking with, if it's a
19 laptop or my phone is on Wi-Fi, if I'm real close, I
20 have pretty good reception?

21 A. If you're real close, you have great
22 reception.

23 Q. So I'm not going to get very many block
24 acknowledgement requests that are explicit in that
25 circumstance?

1 A. I wouldn't expect you to.

2 Q. Okay. Now let's say I was walking away and I
3 go down the hall and further down the hall and further
4 down the hall. I mean, sooner or later, I'm going to
5 get out of range of this thing, right?

6 A. Right.

7 Q. And I'm going to have nothing.

8 A. Right.

9 Q. But if I get pretty far away, but I can still
10 get some radio reception, then what happens to the
11 frequency of block acknowledgement responses that are
12 the explicit type?

13 A. I would expect to see it go up.

14 Q. Are these things essential to compliance with
15 the 802.11n standard?

16 A. Yes, sir, they are.

17 Q. And, again, in the infringement analysis
18 you've done, does it matter to you at all whether or not
19 Ericsson was present or not present at 802.11 meetings
20 when these were being put into the standard?

21 A. No, sir. Infringement analysis really is
22 exactly what we've been doing: Looking to see if the
23 products meet the claims.

24 Q. Let's now move on to the next patent. And
25 this is going to be the '568 patent.

1 MR. STEVENSON: It's at Tab 4 in the jury
2 notebook.

3 A. Thank you.

4 Q. (By Mr. Stevenson) When was this patent filed
5 for, Dr. Nettles?

6 A. It was filed on October 15th, 1996.

7 Q. And what is the date this patent issued?

8 A. October 15th, 2002.

9 Q. And who are the Examiners on it?

10 A. Wellington Chin and Frank Duong.

11 Q. Can you give us a headline encapsulation of
12 what this patent is about?

13 A. This packet -- this patent is about the fact
14 that different kinds of data in the network need
15 different treatment, and so there needs to be a way of
16 identifying the kind or type of data that is in a packet
17 so that it can be given a different treatment.

18 Q. And is this -- what type of data are you
19 talking about, as far as different kinds?

20 A. Well, in the -- the claim construction
21 examples, include video, voice, just regular data.
22 Those are examples in the -- in the standard also.

23 Q. And I believe we can all turn to Tab 1 to look
24 at the claim construction for the '568 patent. And the
25 Court was construing the service type identifier, which

1 we're going to talk about in a minute, which identifies
2 the type of payload information.

3 A. That's right.

4 Q. And how did the Court define that?

5 A. As an identifier that identifies the type of
6 information conveyed in the payload. Examples of types
7 of information include, but are not limited to, video,
8 voice, data, and multimedia.

9 Q. Okay. Well, let's talk a little bit about the
10 setting in which the inventors came up with the
11 invention.

12 What is that?

13 A. They were working on cell phone standards.
14 And remember, this patent was filed in 1996.

15 So at that time, cell phones really -- all
16 they could do is voice. But they were looking forward
17 to a time when cell phones would be able to do voice and
18 video and web pages and e-mail, just -- just like cell
19 phones do today.

20 Q. And what kind of issues can be created by
21 sending different types of data over the same network?

22 A. Different kind of -- kinds of data in
23 particular have different delay tolerances. And so if
24 you want to take into account the tolerance for delay,
25 there needs to be extra -- there needs to be new

1 functionality in the network to allow you to do that.

2 Q. Can you give us an example?

3 A. The example we've been talking about most
4 frequently is with voice or video.

5 If your e-mail is delayed by a minute or two,
6 it's not a big deal. If there's a one-second pause in a
7 video that you're watching, then that's probably
8 annoying.

9 If there's a one-second pause every minute in
10 a phone conversation, that's -- probably makes it pretty
11 hard to have a phone conversation. And if it's every
12 few seconds, it's impossible to have a phone
13 conversation.

14 Q. Can you have phone conversations over these
15 wireless networks?

16 A. Yes, sir. I mean, that's one of the main
17 things we do over them.

18 Q. How do you do that?

19 A. Well, that's -- I mean, that's what cell
20 phones do. But you can also do that over the data
21 network by using what we call Voice over IP technology.
22 That's a way of doing phone calls over the Internet.

23 Q. Okay. And when I asked my question before, I
24 was really referring -- and I didn't ask it well -- to
25 the wireless Wi-Fi networks.

1 A. Oh. Oh, yes, sir.

2 Q. Can you do phone calls from your house over a
3 Wi-Fi network over the Internet?

4 A. Oh, yes, sir. Again, using this Voice over IP
5 Internet phone call technology.

6 Q. What are programs that do that?

7 A. The one that people have probably heard of the
8 most is called Skype, but also a lot of -- you know, a
9 lot of cable companies provide VoIP phones, and so those
10 might go over wireless.

11 Q. Okay. I've -- I've heard of Skype before. I
12 think I've seen it, like on TV, being used by families
13 of servicemen to communicate with them overseas and that
14 sort of thing. What's the advantage of using Skype as
15 opposed to just making a long distance call?

16 A. Well, as long as the person that you want to
17 talk to has Internet -- and, for example, service people
18 in Afghanistan have the Internet -- you can make
19 essentially free phone calls to them.

20 Q. Free long distance?

21 A. Yes, sir, and, in fact, video calls as well.

22 Q. Okay. So would that be an example of
23 different types of traffic on the same network?

24 A. Yes, sir. If you were making a call like that
25 and you were also receiving e-mail, those would be two

1 different kinds of data.

2 Q. So what is the solution of the patent for
3 dealing with the complications or problems caused by
4 having different types of data on the same network?

5 A. Well, they introduced something called a
6 service type identifier. So they created another
7 compartment or field where you could actually put an
8 identification of what kind of data was in the packet.

9 Q. Have you prepared an animation that we can
10 look at to see and understand a little better the
11 service type identifier?

12 A. Yes, sir, I have.

13 Q. So it appears now that we are zooming in on
14 the base station and one of the terminals, right?

15 A. Yes, sir.

16 Q. And just as a persistent reminder, we keep
17 showing the base station in these animations
18 transmitting to the terminal, but they can go both ways,
19 can't they?

20 A. Yes, sir, and they do.

21 Q. I mean, if you were on a Skype call on your
22 computer, you would be sometimes sending and sometimes
23 receiving based on who's talking.

24 A. Exactly.

25 Q. Can we put this in motion?

1 A. We can.

2 Q. What is this group of multicolored packets?

3 A. Well, again, these are packets, but this time
4 we've colored them different colors to indicate that
5 they have different kinds of information in them.

6 Q. And can we zoom in on a packet?

7 A. We can.

8 Q. We zoomed in on the yellow one.

9 A. Yes, sir. And we see at the front, there's a
10 00.

11 Q. Are we again seeing these compartments we've
12 been talking about?

13 A. Yes, sir.

14 Q. And was the invention here to create that
15 compartment there on the left?

16 A. That's right.

17 Q. The one that says 00 on it?

18 A. Yes, sir. It can have other values, but
19 that's the invention.

20 Q. Okay. And what is that called in the patent?

21 A. That's the service type identifier. And then
22 the claim construction actually just calls it type
23 identifier.

24 Q. Okay. And what is the -- in the -- in the
25 rest of the packet, what are the squiggly things that

1 looks like a voice oscilloscope?

2 A. That's our graphical representation of voice.

3 Q. Now, in the real world, they're not sending
4 scribbles. Are they sending --

5 A. 1s and 0s.

6 Q. I'm just kind of curious. I mean, just a
7 ballpark. In one sentence, how many 1s and 0s would you
8 need to capture -- not one of my long sentences but just
9 a short sentence and turn it into a bunch of 1s and 0s?

10 A. Well, the -- the typical way voice is
11 digitized for sending over the phone, you break every
12 second of conversation into 8,000 pieces.

13 Q. And you're talking thousands and thousands of
14 1s and 0s just for a second of --

15 A. 8,000. Exactly 8,000 per second.

16 Q. Okay. What's the purpose of the service type
17 identifier?

18 A. It's to identify the type of the payload.

19 Q. Okay. So in this case, can we -- is there a
20 lookup chart in the standard?

21 A. Yes, sir, there is.

22 Q. And I asked about the standard. Let's start
23 with the patent. Let me back up.

24 A. Sorry. I thought that's what you meant.

25 Q. I meant to ask about the patent.

1 Is there a description in the patent of what
2 different types of service type identifiers can be?

3 A. Yes, sir, there is.

4 Q. So what are we seeing here?

5 A. We're seeing a table that's taken from the
6 patent that says, for example, that if you want to send
7 voice, you're going to label it 00 in the service time
8 identifier.

9 Q. And with the -- would that then get looked up
10 as to what 00 stands for?

11 A. Yes, sir.

12 Q. And where did you get your examples for voice
13 and video and data and multimedia to put in this slide?

14 A. It's from the patent. I'm looking for the
15 page number.

16 Q. Is it also from the claim construction we
17 read?

18 A. Oh, yes, sir. Those -- those particular kinds
19 of data are from the claim construction.

20 Q. Okay.

21 A. I guess maybe there's not an explicit picture.

22 Q. Well, let me ask you about the importance of
23 the service type identifier.

24 A. Yes, sir.

25 Q. What does it allow the network to do?

1 A. Well, it allows it to treat the different
2 kinds of data differently based on what kind of data it
3 is.

4 Q. Okay. How could they be processed
5 differently?

6 A. Well, in particular, you might give voice the
7 highest priority, because it's the most sensitive to
8 delay. You might give video the next highest priority
9 because it's more sensitive than data. You might give
10 data the lowest priority.

11 Q. All right. Well, let's look now at the claim
12 and talk about that. And I believe the claim is located
13 at the last page of the patent, Tab 4, Column 13.

14 This claim seems a little bit different than
15 the ones we talked about before. The ones we talked
16 about before were called a method. This one reads: A
17 communication station comprising.

18 What kind of claim does that indicate to you
19 that this is?

20 A. It's called an apparatus claim.

21 Q. Okay. And how do you go about determining
22 infringement of an apparatus claim?

23 A. You look to see if the accused device is an
24 apparatus or a machine that is capable of doing the
25 things that are in the claim limitations.

1 Q. But like before, do we have to go through each
2 element and make sure that that is met in the accused
3 devices?

4 A. Oh, yes, sir, except for now we're looking for
5 capability.

6 Q. Okay. Which Defendants infringe Claim 1?

7 A. All of them.

8 Q. And which products infringe? All their
9 products?

10 A. Yes, sir.

11 Q. Let's read this together. This requires a
12 processor for arranging information for transmission
13 including providing at least one first field in which
14 payload information is disposed and providing at least
15 one second field, separate from said first field, which
16 includes a service type identifier which identifies a
17 type of payload information provided in said at least
18 one first field.

19 So is the claim setting up essentially two
20 fields, a first and a second?

21 A. That's exactly what it's doing.

22 Q. Are those the fields we looked at in the
23 animation you just showed us?

24 A. Yes, sir.

25 MR. STEVENSON: Would you go back to

1 that, Mr. Diaz, please? Thank you.

2 Q. (By Mr. Stevenson) So what is being claimed
3 here are the two fields, the first field and the second
4 field.

5 A. Yes, sir.

6 Q. And then the next element is transmitter for
7 transmitting. We talked about that.

8 Do the accused devices have a processor for
9 arranging information for transmission?

10 A. Yes, sir, they do.

11 Q. And are they all capable of doing that?

12 A. Yes, sir. They are all capable of arranging
13 things to be transmitted.

14 Q. Now I want to get into the first field and
15 second field. Are we going to need to get into the
16 standard to actually see visually those fields?

17 A. Yes, sir, we will.

18 Q. Okay. Do you have a slide that shows the
19 standard?

20 A. I do.

21 Q. Okay. And, again, this is Plaintiff's Exhibit
22 286.

23 A. Yes, sir.

24 Q. What's the best place for us to look in this
25 to find the -- the format?

1 A. If we look at Page 13, we see Figure 7-1.

2 This is the MAC frame format. Again, frame is another
3 word we use for packet.

4 Q. Let's all understand what we're seeing here.
5 Let's make sure we're all on the same page, so to speak.
6 This is one of the diagrams out of the actual standard?

7 A. Oh, yes, sir. It's on Page 13.

8 Q. And, again, this is a verbatim copy, right?

9 A. Yes, sir.

10 Q. Not something you created as a demonstrative;
11 this is the actual evidence.

12 A. Yes. This was -- yes, sir. This was scanned
13 from the -- from a copy of the standard.

14 Q. And this is called the MAC frame format.

15 A. Yes, sir.

16 Q. What's a MAC frame?

17 A. Well, again, MAC is the media access control
18 layer. That's what -- essentially, everything we've
19 been talking about so far, where all of that
20 functionality resides.

21 And frame is just a different word for packet.
22 And format just means how is the packet laid out into
23 compartments.

24 Q. Is this one of those blue things or one of the
25 orange things?

1 A. Well, actually, this is a general one, but
2 this is basically one of the blue things.

3 Q. Okay. So this is the overall look at a blue
4 packet?

5 A. Yes, sir.

6 Q. And this is actually not -- the control
7 information, this has the data that's the video or
8 video, right?

9 A. That's right.

10 Q. And does every one of these packets have the
11 format that's defined there?

12 A. Yes, sir, the ones that carry data do.

13 Q. I mean, do they all have to be consistently
14 the same?

15 A. Well, yes, sir, or otherwise, there's -- I
16 mean, again, it's -- everything has to be consistent for
17 people to be able to talk.

18 Q. Okay. So next -- can you show us where we can
19 look into the compartments of the packet to find the
20 first field and the second field that's recited in the
21 claims?

22 A. Yes, sir. If you look at the field that says
23 frame body, that's the payload. That's the first field.

24 Q. Okay. Why do you call that payload?

25 A. Well, that's the place in the -- in the frame

1 that you would deposit the data. And we call the data
2 the payload. That's just the terminology.

3 Q. Okay. And can you tell from looking at this
4 diagram -- the way it's drawn, they're all the same size
5 box? In reality, are they all the same sizes in the
6 real packets that fly around?

7 A. Oh, no, sir. In fact, that's an important
8 part about this picture, is that it shows -- above it
9 shows a number, and the number says how many bytes that
10 compartment can be.

11 And, in fact, one of the reasons that it's
12 clear that the frame body is the payload is because it
13 says it can be from 0 bytes all the way up to 7,955
14 bytes.

15 So that's where -- remember, we talked about
16 the packets being variable size? That's where the
17 variable size happens.

18 Q. Okay. And bytes being a computer term for?

19 A. 8 bits.

20 Q. And bits being a computer for?

21 A. 1s and 0s.

22 Q. Okay. So this is -- this is a lot of 1s and
23 0s in the frame body, and those 1s and 0s are going to
24 correspond to whatever content is being sent?

25 A. Exactly.

1 Q. So that -- that's your payload?

2 A. That's right.

3 Q. And is payload a pretty typical word that
4 people who deal with these kind of packets use to
5 describe the content?

6 A. Yes, sir. It's not the only word, but it
7 would be typical. Everybody would understand that word.

8 Q. So we talked about the payload information in
9 the first field. Now, what we need to know next is, is
10 there a second field, separate from the first field?

11 A. Yes, sir.

12 Q. Have you identified that second field?

13 A. I have.

14 Q. And can we show it on here?

15 A. We look at the QoS control field.

16 Q. Is that separate from the payload field?

17 A. It is.

18 Q. Does that field include a service-type
19 identifier which identifies a type of payload
20 information provided in said at least one first field?

21 A. Yes, sir, it does.

22 Q. And we have "at least one" again. What does
23 "at least one" mean?

24 A. "At least one" means -- sorry. I need to --

25 Q. Just in ordinary parlance, does that mean one

1 or more?

2 A. Yes, sir, it does.

3 Q. So you could have one payload -- or more
4 important, two or three payloads and meet this claim?

5 A. Oh, yes, sir. It's just that in this case we
6 only have one payload.

7 Q. But that -- that -- the payload and the -- and
8 the -- the first and second field, payload and the other
9 one, have at least one field?

10 A. Yes, sir.

11 Q. What is inside the QoS control field you've
12 identified?

13 A. Well, it's another one of these nested
14 compartments. We have to look inside.

15 Q. What does QoS stand for?

16 A. That stands for quality of service.

17 Q. What does quality of service generally mean?

18 A. It's the term we use when we want to
19 distinguish between different kinds of data and we want
20 to give them different qualities of service. Like we
21 want to give very good quality of service to voice and
22 pretty good quality of service to video and best effort
23 quality of service to data.

24 Q. Okay. So now you zoomed in on what's inside
25 the QoS control, and we have another format chart.

1 A. That's right.

2 Q. And that's from where in the standard?

3 A. That's Table 7-4. That is on Page 16 of the
4 standard.

5 Q. Of the --

6 A. 2009 standard.

7 Q. PX 286?

8 A. Yes, sir.

9 And what that's showing is that in that field,
10 the first four bits -- those are bits 0 through 3 -- are
11 a TID.

12 Q. Okay. Let me -- let me stop you there, and
13 ask you: You say bits 0 to 3?

14 A. Yes, sir.

15 Q. When it says bits, are you talking about data
16 bits?

17 A. Yes, sir.

18 Q. And under that, then, there's a list of six
19 rows.

20 A. Yes, sir.

21 Q. Each of them says TID in it.

22 A. That's right.

23 Q. What's that referring to?

24 A. Well, each of the rows is a different kind of
25 packet that all have this same basic format inside of

1 them. So the column to the left of the TID column
2 describes exactly what those different kinds of packets
3 are.

4 Q. Okay. Does TID stand for something?

5 A. Type identifier.

6 Q. And does that type identifier correspond, in
7 your opinion, to the service-type identifier that is
8 required for the elements of the claim?

9 A. Yes, sir, it does.

10 Q. Do all 802.11n devices have to follow this
11 packet format?

12 A. Yes, sir, they do.

13 Q. Is there anything in the standard that would
14 map the TID value to the type of information it would
15 contain?

16 A. Oh, yes, sir. There's a table.

17 Q. All right.

18 MR. STEVENSON: Can we show that table?

19 Q. (By Mr. Stevenson) We jumped to another slide
20 here.

21 A. Yes, sir.

22 Q. Which exhibit is this from?

23 A. This is from PX 0283. That's the earlier 2007
24 standard.

25 Q. And explain how these 2009 and 2007 standard

1 books you have interrelate.

2 A. Well, the -- the 2007 standard stands on its
3 own. It's complete. But the 2009 standard is basically
4 a revision. So it says how to revise the 2007 standard
5 to be the 2009 standard. So it has all the additions.

6 If there's a change, it will show the
7 deletions. But if it's not an addition or a change,
8 it's going to be in the 2007 standard.

9 Q. Okay. So this one is in the 2007, and it
10 carries forward to the 2009?

11 A. That's right.

12 Q. And, again, is this -- this isn't something
13 you created. Is this verbatim from the standard?

14 A. Yes, sir, it is.

15 Q. Explain what this chart is, please.

16 A. Well, this is a chart that's showing what the
17 possible values for that TID field are. That's the UP,
18 the user priority field, in this table. And we see
19 highlighted at the bottom 4, 5, 6, and 7.

20 And if we look to the right, we'll see that 4,
21 5, 6, and 7 are AC_VI, which is a designation for video,
22 and then AC_VO, which is a designation for voice.

23 Q. Okay. Let me -- let me ask you to walk back
24 through that with me just to make sure I've understood
25 it. In the left - second to the left column, the one

1 I'm pointing to with the blue arrow -- that column.

2 A. Yes, sir.

3 Q. Where would those numbers go in the prior
4 slide that we looked at?

5 A. They would go in the TID field that we saw.

6 Q. So the TID field is going to be a 0, 1, 2, 3,
7 4, 5, 6, or 7?

8 A. Yes, sir.

9 Q. And does that number -- would that go into the
10 QoS control field that we looked at in the -- in the
11 packet?

12 A. Yes, sir. The TID field that we looked at is
13 a subfield of the QoS control field.

14 Q. Then in the AC field, we have AC_VI -- AC_VI,
15 AC_VO, AC_VO.

16 A. Yes, sir.

17 Q. What do those refer to?

18 A. Those are the particular names the standard
19 gives to the -- these particular priorities. So AC_VI
20 are -- is priority 4 and 5, and AC_VO is priority 6 and
21 7.

22 Q. Now, defense counsel said in opening that this
23 802.11n doesn't identify what's in the payload. And I
24 think we saw a slide of a milk truck in the fast lane.

25 Do you remember that?

1 A. I saw that slide, yes.

2 Q. Well, is that right?

3 A. Well, I mean, this table says voice and video,
4 doesn't say milk truck, but it doesn't say fast lane?

5 Q. Okay. So what is the significance of the
6 table saying voice or video within the standard?

7 A. Well, this table is telling someone who would
8 use this capability that if they want to carry voice,
9 they should give it a UP of 6 or 7. And if they want to
10 carry video, they should give it a UP of 4 or 5.

11 Q. So if you wanted to take advantage of the
12 quality of service capabilities, you could do that?

13 A. Yes, sir.

14 Q. Okay. Are all the -- excuse me. In what part
15 of the computer is this performed, this element?

16 A. Well, this is -- this is performed in the MAC.

17 Q. That's the media access controller layer?

18 A. Yes, sir, it is.

19 Q. And is that one of the lower layers or lower
20 levels of the -- what I'll call the transmission stack?

21 A. Yes, sir. We're going to see a picture of
22 that in a few minutes, but it's the -- it's the second
23 lowest layer.

24 Q. Do all the accused computers in this case have
25 the capability of transmitting this TID field as part of

1 the packets they transmit?

2 A. Yes, sir, they do.

3 Q. Is the same true for the router?

4 A. Yes, sir, it is.

5 Q. How do the routers meet these functional
6 limitations?

7 A. Well, they also have a processor that arranges
8 these fields and creates these payload fields, puts
9 payloads in them, creates this type identifier field,
10 puts this value in them in really the same way as the
11 computers and laptops do.

12 Q. Have you found the first element to be met in
13 the Defendants' products?

14 A. Yes, sir.

15 Q. Let's talk about the second elements. A
16 transmitter for transmitting information received from
17 said processor, including said at least one first field
18 and said at least one second field.

19 So you've got another one here that requires
20 the first and second fields that we've defined up here
21 to be transmitted -- well, at least a transmitter for
22 transmitting them.

23 Do the accused devices have a transmitter?

24 A. Yes, sir. I mean, that's -- that's part of
25 the main point of them, is to be a transmitter and a

1 receiver.

2 Q. And do they actually transmit the first field
3 and second field along with every transmission?

4 A. Yes, sir, they do.

5 Q. Do you find that element to be met?

6 A. Yes, sir, I do.

7 Q. Let's move on to Claim 5. What kind of claim
8 is Claim 5?

9 A. It's another one of these dependent claims.
10 It's still an apparatus claim.

11 Q. Okay. So this -- is this the same thing we've
12 done before where we go through and see if No. 1 and No.
13 2 are met and then we have to add on -- there's a next
14 element -- what is in Claim 5?

15 A. Yes, sir, exactly.

16 Q. So the first two elements carry over and now
17 we just need to see if 5 is true?

18 A. Yes, sir.

19 Q. In your opinion, which Defendants infringe
20 Claim 5?

21 A. The router Defendants.

22 Q. Just the router Defendants?

23 A. Yes, sir.

24 Q. And why just the router Defendants?

25 A. Because this limitation requires a base

1 station, and the routers are base stations.

2 Q. What is a base station?

3 A. A base station is something which connects a
4 wired network and a wireless network. So your router is
5 an example. The things that you see on the cell towers
6 are examples.

7 Q. I've heard of cellular base stations before.

8 A. Yes, sir.

9 Q. Are -- are these routers and access points
10 we're dealing with in this case, these Defendants, are
11 they fairly called base stations, also?

12 A. Yes, sir. I think the Defendants call them
13 that.

14 Q. Is this term -- terminology equally applicable
15 to cellular, as well as Wi-Fi?

16 A. Absolutely.

17 Q. Have you seen evidence that the Defendants
18 actually refer to their routers and access points as
19 base stations?

20 A. I have.

21 Q. Did you put it on the slide?

22 A. Yes, sir, I did.

23 So this is for NETGEAR.

24 Q. It is PX 0509?

25 A. Yes, sir. And it says: There are various

1 types of access points, also referred to as base
2 stations, used in both wireless and wired networks.

3 Q. Do you find Claim 5 to be met in the accused
4 devices?

5 A. In the router accused devices, yes, sir.

6 Q. Thank you.

7 Is the capability in these claims to transmit
8 the first field and the second field essential to
9 compliance with the 802.11 standard?

10 A. Yes, sir, it is.

11 Q. And how does this capability improve the
12 performance of Wi-Fi networks?

13 A. The performance of Wi-Fi networks is -- this
14 lets you do quality service. So this lets you
15 prioritize voice and video, and that's going to improve
16 the -- the performance in the sense that you'll get
17 better performance for the things that you care about
18 having a low delay, and the things that tolerate delay
19 better will -- you'll be allowed to have a little bit
20 more delay, so...

21 Q. Are there programs that actually use this
22 capability that is within the routers and the computers?

23 A. Yes, sir, there are.

24 Q. And is this -- are these marketed as QoS
25 devices? Is that how they're described in the market?

1 A. Yes, sir. They'll mention something about
2 QoS, or there will be some QoS aspect that you'll have
3 to -- that they'll tout.

4 Q. All right. Are there a lot of programs or
5 applications currently in the market that take advantage
6 of this capability?

7 A. No, sir. Really just a handful.

8 Q. Okay. Have you identified some, though?

9 A. Yes, sir, I have.

10 Q. Which ones have you identified that use this
11 capability?

12 A. Well, one example would be a program called
13 CSipSimple, which runs on Android phones.

14 Q. CSipSimple?

15 A. Yes, sir.

16 Q. And how do you get that if you have an Android
17 phone?

18 A. It's a free application.

19 Q. What does it let you do?

20 A. Well, it lets you -- it's another one of these
21 programs that lets you make the free foreign phone calls
22 over the Internet.

23 Q. Okay. And that runs on Android?

24 A. That particular one does.

25 Q. And does that take advantage of this

1 capability?

2 A. It does.

3 Q. Are you aware of others that run on computers
4 that take advantage of this capability?

5 A. Yes, sir. The Skype program I mentioned
6 before and a program called Ekiga, when running on the
7 Linux operating systems, takes advantage of these
8 capabilities.

9 Q. Okay. And what does Ekiga do?

10 A. It's -- it's, again, another one of these
11 Voice over IP phones, although I think it's more focused
12 on making video calls.

13 Q. Okay. Like a video conference thing for your
14 computer?

15 A. Yes, sir.

16 Q. Okay. And does Windows have any programs or
17 applications that take advantage of this capability?

18 A. Yes, sir. Under Windows 7 and Windows 8,
19 actually, there's a facility called QA that once you
20 start it, Windows Media will take advantage of this
21 quality of services to, for example, stream video to an
22 Xbox using quality of service.

23 Q. And does it do that the whole time, or does it
24 do it adaptively?

25 A. It does it adaptively. So it won't always

1 take advantage of this facility. Only when it thinks
2 it's advantageous to do so.

3 Q. And how did you determine that these programs
4 are actually taking advantage of this capability?

5 A. I ran them.

6 Q. Okay. And did you see some testing done by
7 Defendants' experts where they ran some of these
8 programs as well?

9 A. Yes, sir, I did.

10 Q. And were they able -- were you able to see
11 another test where they saw this capability being taken
12 advantage of by the programs?

13 A. In certain cases, yes, sir.

14 Q. Okay. And let me ask you this: I know you
15 said it's a handful of programs currently being offered;
16 but does the fact that it is currently a handful of
17 programs using this and taking advantage of this
18 feature, affect your opinion on whether the computers
19 and routers infringe this apparatus claim?

20 A. No, sir, not at all. This -- this claim is
21 infringed because of the capability of doing this.

22 Q. Okay. Is there anything we need to talk about
23 more on the '568 patent?

24 A. Not that I can think of.

25 Q. Let's go to the next patent.

1 THE COURT: How long do you anticipate
2 this patent will take?

3 MR. STEVENSON: 25 or --

4 THE COURT: All right. I think we better
5 break for lunch. We've been going a pretty long time
6 now, so...

7 All right, Ladies and Gentleman of the
8 Jury. I -- we will take our lunch break at this time.

9 Please remember my instructions. Don't
10 discuss the case amongst yourselves or with anyone else.
11 Enjoy your lunch, and we'll see you back here at 12:25.

12 We'll be in recess.

13 COURT SECURITY OFFICER: All rise.

14 (Jury out.)

15 (Lunch recess.)

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1 CERTIFICATION

2

3 I HEREBY CERTIFY that the foregoing is a
4 true and correct transcript from the stenographic notes
5 of the proceedings in the above-entitled matter to the
6 best of our abilities.

7

8

9 /s/ Shea Sloan
SHEA SLOAN, CSR
10 Official Court Reporter
State of Texas No.: 3081
11 Expiration Date: 12/31/14

12

13

/s/ Judith Werlinger
14 JUDITH WERLINGER, CSR
Deputy Official Court Reporter
15 State of Texas No.: 731
Expiration Date 12/31/14

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